CHILKOOT PASS.

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KLONDIKE

THE CHICAGO RECORD'S BOOK FOR GOLD SEEKERS.

Profusely Illustrated.

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WESTERN W. WILSON,
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PREFACE.

An unknown number of men have decided to seek fortune in the Klondike country. At this moment, thousands of them have their eyes fixed on the gold placer mines in the Yukon district. There exists a widespread, insistent demand for information which will enable the prospective gold-seekers to arrange their gold-seeking plans in detail. That information will be found between the covers of this book.

THE CHICAGO RECORD has undertaken to assemble all the facts, figures, and knowledge obtainable about the gold-bearing lands in Alaska and the British Yukon district. It has drawn upon its immense resources to the fullest extent, and has spared neither pains nor money to gather the sorely needed information which thousands of men are demanding.

In "Klondike: The Chicago Record's Book for Gold-Seekers," every known practical and contemplated route to all the gold fields in the north is fully, comprehensively and minutely described, with maps and tables of distances which are absolutely reliable. Everything which a gold-seeker should know that can be placed in type is contained in this book. THE CHICAGO RECORD is particularly well-equipped for gathering this large amount of information. It was the first newspaper in

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the United States to send a staff correspondent to the gold fields, and his letter describing the great Klondike "strike" was the first announcement in this country of the discovery.

It has been publishing the most reliable news of the gold fields under the arctic circle for two years. It had in hand a large amount of information, and what it needed to make this book complete came over the wires.

Many of the illustrations in this book are copied from photographs taken by a staff correspondent of THE CHICAGO RECORD, and will be found in no other book.

The gold-seeker may take this book with him as a guide. It also can be placed in the home library, for its pages have a distinct educational value.

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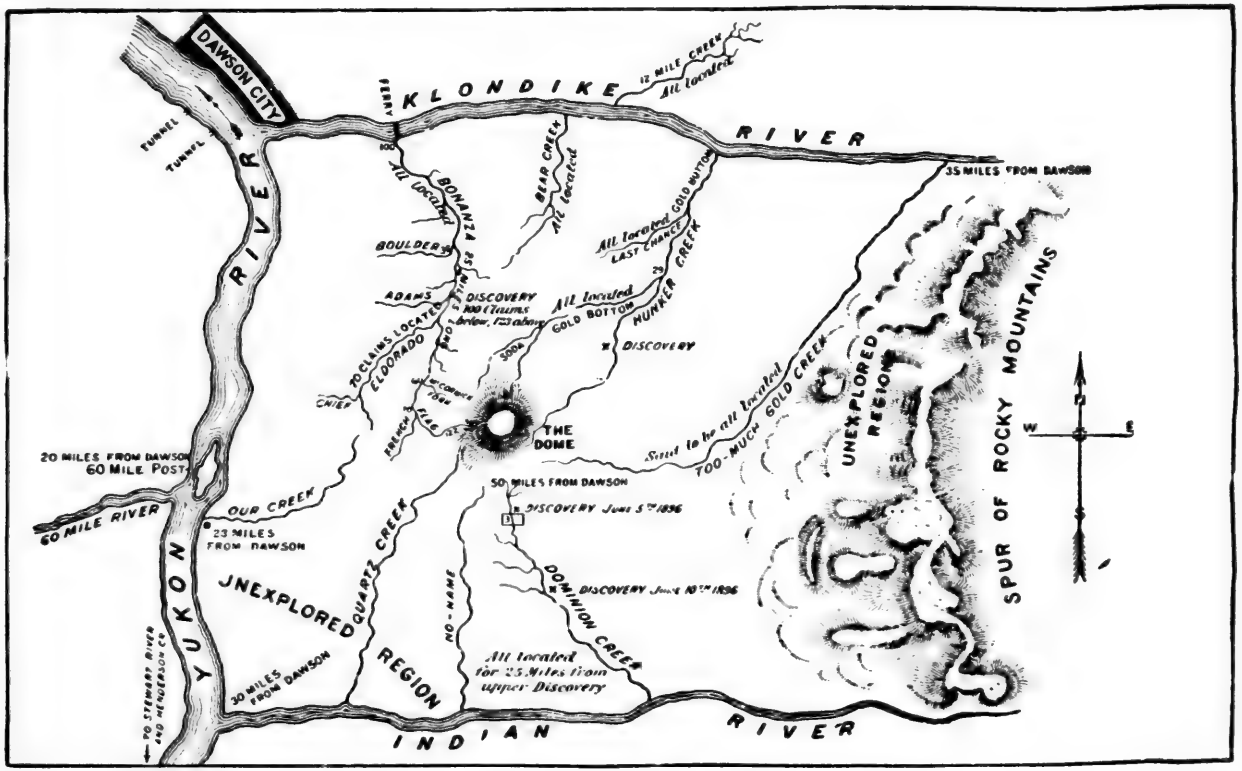


THE KLONDIKE GOLD FIELD.

KLONDIKE.

THE CHICAGO RECORD'S BOOK FOR GOLD-SEEKERS.

CHAPTER I.

WHERE THE GOLD IS FOUND.

THE Klondike placer mines are located in the Northwest territory of British America, just east of the Alaskan border line, and about 2,200 miles from the mouth of the Yukon river. The Klondike is a stream which enters the Yukon about two miles from Dawson City, which is about 170 miles from Circle City. The Klondike is about 140 miles in length, running in a westerly direction, and the gold-bearing creeks, where the richest deposits have been found, run into the Klondike from a southerly direction.

Two and a half miles up the Klondike, from its confluence with the Yukon river, is Bonanza creek, which has several small tributaries. Twelve miles from where the Bonanza creek enters the Klondike, and running ap-

proximately parallel with the Yukon, is El Dorado creek, which is from twelve to fifteen miles in length. About seven miles further up Bonanza creek is Gold Bottom creek, and several miles beyond is Adams creek, and still nearer the source of Bonanza creek are smaller streams, all gold bearing. Some twelve miles up the Klondike is Bear creek, with its tributaries; twelve miles beyond Hunker creek empties into the Klondike, and about the same distance from there, up the Klondike, is Too Much Gold creek. The richest finds have been made principally on the Bonanza and El Dorado, but rich strikes have been reported on all the creeks named.

Prospectors have found rich deposits on Indian river, which empties into the Yukon about fifty miles below the Klondike. Indian river runs in a southwesterly direction, and running out of Indian creek is Quartz creek, a well-explored stream about fifty miles from the confluence of Indian creek and the Yukon. About six miles from the mouth of Quartz creek, extending in a northerly direction to the range of hills which separates the delta of Indian creek from that of the Klondike, is First Left Hand fork; eight miles beyond is Kettleson fork. From the opposite side and running in an opposite direction out of Quartz creek, and about five miles from its mouth, is Phil creek. From the latest reports these creeks are being prospected extensively, and good finds have been made.

All of these rivers and creeks contain gold, and it is believed that over 500 claims will be located in Indian creek alone. Further south yet lies the head of several branches of Stewart river, on which some prospecting has been done and good indications found, but the want of provisions prevented development. Gold has been found in several of the streams joining Pelly river, and

also all along the Hootalinqua. In the line of these finds farther south is the Cassiar gold field in British Columbia; so the presumption is that in the territory along the easterly watershed of the Yukon is a gold-bearing belt of indefinite width, and upward of three hundred miles long, exclusive of the British Columbia part of it. On the westerly side of the Yukon prospecting has been done on a creek a short distance above Selkirk with a fair amount of success, and on a large creek some thirty or forty miles below Selkirk fair prospects have been found. But, as before remarked, the difficulty of getting supplies here prevents any extensive or extended prospecting.

The gold streak is anywhere from eight to thirty feet from surface and is reached by sinking a shaft from two to three feet wide and six feet long down to the pay streak and then drifting under ground along the pay streak. Sinking this shaft and working the pay streak is made difficult from the fact that from the surface to the deepest depth that has yet been reached the ground is always frozen, and a process of firing, in order to thaw out the ground, is employed. A brush and wood fire is built in the bottom of the shaft, which, burning all night, thaws out the ground from eight to fourteen inches. The gravel is shoveled out during the day and the operation repeated until the required depth is reached. The average progress in the shaft is from eight to fourteen inches per day. When the pay streak is reached the miners drift under the ground, which does not have to be supported by timbers on account of its being frozen. The fire in thawing out the pay streak generates a noxious gas, which, after the fire has burned out, must be expelled before work can be done. This is accomplished by the use of bellows, fans and other devices. A machine, how-

ever, is being manufactured in Seattle that is expected to expel these gases speedily.

The process of "placer" mining in Alaska is about as follows: After clearing all the coarse gravel and stone off a patch of ground, the miner lifts a little of the finer gravel or sand in his pan, which is a broad, shallow dish, made of strong sheet iron or copper; he then puts in water enough to fill the pan, and gives a few rapid whirls and shakes; this tends to bring the gold to the bottom, on account of its greater specific gravity.

The dish is then shaken and held in such a way that the gravel and sand are gradually washed out, care being taken as the process nears completion to avoid letting out the finer and heavier parts that have settled to the bottom. Finally all that is left in the pan is whatever gold may have been in the dish and some black sand, which almost invariably accompanies it.

This black sand is nothing but pulverized magnetic iron ore. Should the gold thus found be fine, the contents of the pan are thrown into a barrel containing water and a pound or two of mercury. As soon as the gold comes in contact with the mercury it combines with it and forms an amalgam.

The process is continued until enough amalgam has been formed to pay for "roasting" or "firing." It is then squeezed through a buckskin bag, all the mercury that comes through the bag being put back into the barrel to serve again, and what remains in the bag is placed in a retort, if the miner has one, or, if not, on a shovel, and heated until nearly all the mercury is vaporized. The gold then remains in a lump with some mercury still held in combination with it.

This is called the "pan" or "hand" method, and is never, on account of its slowness and laboriousness, con-

tinued for any length of time when it is possible to procure a "rocker," or to make and work sluices.

A "rocker" is simply a box about three feet long and two wide, made in two parts, the top part being shallow, with a heavy sheet-iron bottom, which is punched full of quarter-inch holes. The other part of the box is fitted with an inclined shelf about midway in its depth, which is six or eight inches lower at one end than at the other. Over this is placed a piece of heavy woolen blanket. The whole is then mounted on two rockers, much resembling those of an ordinary cradle, and when in use they are placed on two blocks of wood so that the whole may be readily rocked.

After the miner has selected his claim, he looks for the most convenient place to set up his "rocker," which must be near a good supply of water. Then he proceeds to clear away all the stones and coarse gravel, gathering the finer gravel and sand in a heap near the "rocker." The shallow box on top is filled with this, and with one hand the miner rocks it, while with the other he ladles in water.

The finer matter with the gold falls through the holes on to the blanket, which checks its progress, and holds the fine particles of gold, while the sand and other matter pass over it to the bottom of the box, which is sloped so that what comes through is washed downward and finally out of the box.

Across the bottom of the box are fixed thin slats, behind which some mercury is placed to catch any particles of gold which may escape the blanket. If the gold is nuggety, the large nuggets are found in the upper box, their weight detaining them until all the lighter stuff has passed through, and the smaller ones are held by a deeper slat at the outward end of the bottom of the

box. The piece of blanket is, at intervals, taken out and rinsed into a barrel; if the gold is fine, mercury is placed at the bottom of the barrel, as already mentioned.

Sluicing is always employed when possible. It requires a good supply of water, with sufficient head or fall. The process is as follows: Planks are procured and formed into a box of suitable width and depth. Slats are fixed across the bottom of the box at suitable intervals, or shallow holes bored in the bottom in such order that no particle could run along the bottom in a straight line and escape without running over a hole.

Several of these boxes are then set up with a considerable slope, and are fitted into one another at the ends like a stovepipe. A stream of water is now directed into the upper end of the highest box. The gravel having been collected, as in the case of the rocker, it is shoveled into the upper box and is washed downwards by the strong current of water.

The gold is detained by its weight, and is held by the slats or in the holes mentioned. If it is fine, mercury is placed behind the slats or in these holes to catch it. In this way about three times as much dirt can be washed as by the rocker, and consequently three times as much gold is secured in a given time. After the boxes are done with they are burned, and the ashes washed for the gold held in the wood.

A great many of the miners spend their time in the summer prospecting and in the winter resort to a method lately adopted and which is called "burning." They make fires on the surface, thus thawing the ground until the bed rock is reached, then drift and tunnel. The pay dirt is brought to the surface and heaped in a pile until spring, when water can be obtained.

The sluice boxes are then set up and the dirt is washed

out, thus enabling the miner to work advantageously and profitably the year round. This method has been found very satisfactory in places where the pay streak is at any great depth from the surface. In this way the complaint is overcome which has been so commonly advanced by the miners and others that in the Yukon region several months in the year are lost in idleness.

Winter usually sets in very soon after the middle of September and continues until the beginning of June, and is decidedly cold. The mercury frequently falls to 60 degrees below zero, but in the interior there is so little humidity in the atmosphere that the cold is more easily endured than on the coast. In the absence of thermometers miners, it is said, leave their mercury out all night. When they find it frozen in the morning they conclude it is too cold to work, and stay at home. The temperature runs to great extremes in summer as well as in winter. It is quite a common thing for the thermometer to register 100 degrees in the shade.

Gold dust passes current at $17 an ounce, though actually of the value of $16.50 an ounce.

CHAPTER II.

HOW TO GET TO THE KLONDIKE.

OMER MARIS, who was sent into Alaska in 1896 by the CHICAGO RECORD, and who now is on his way to the Klondike fields, made the trip through the Chilkoot pass. He describes the various routes to the Klondike as follows:

There are three principal ways of going to the Klondike gold fields. One is an all-water route from Seattle by way of the mouth of the Yukon. It is a fifteen days' voyage from Seattle to St. Michael. One goes straight out into the Pacific toward Japan for 1,800 miles. Then one turns through Unimak pass to the Aleutian islands, and touches for a day at the port of Dutch Harbor. Thence one sails away to the north across Bering sea and past the seal islands, 800 miles farther, to the port of St. Michael.

This is a transfer point, and the end of the ocean voyage. At St. Michael, after a wait of anywhere from a day to two weeks, granting that the river is open, one may go aboard a flat-bottomed river steamer for another fifteen or twenty days' voyage up the Yukon.

If one should arrive at St. Michael as early as Aug. 25 he would have pretty good assurance of reaching the mines before cold weather closed river navigation, but arriving later than that his chances would be good for either wintering on the desolate little island of St. Michael or traveling by foot and dog-sled the 1,900 miles

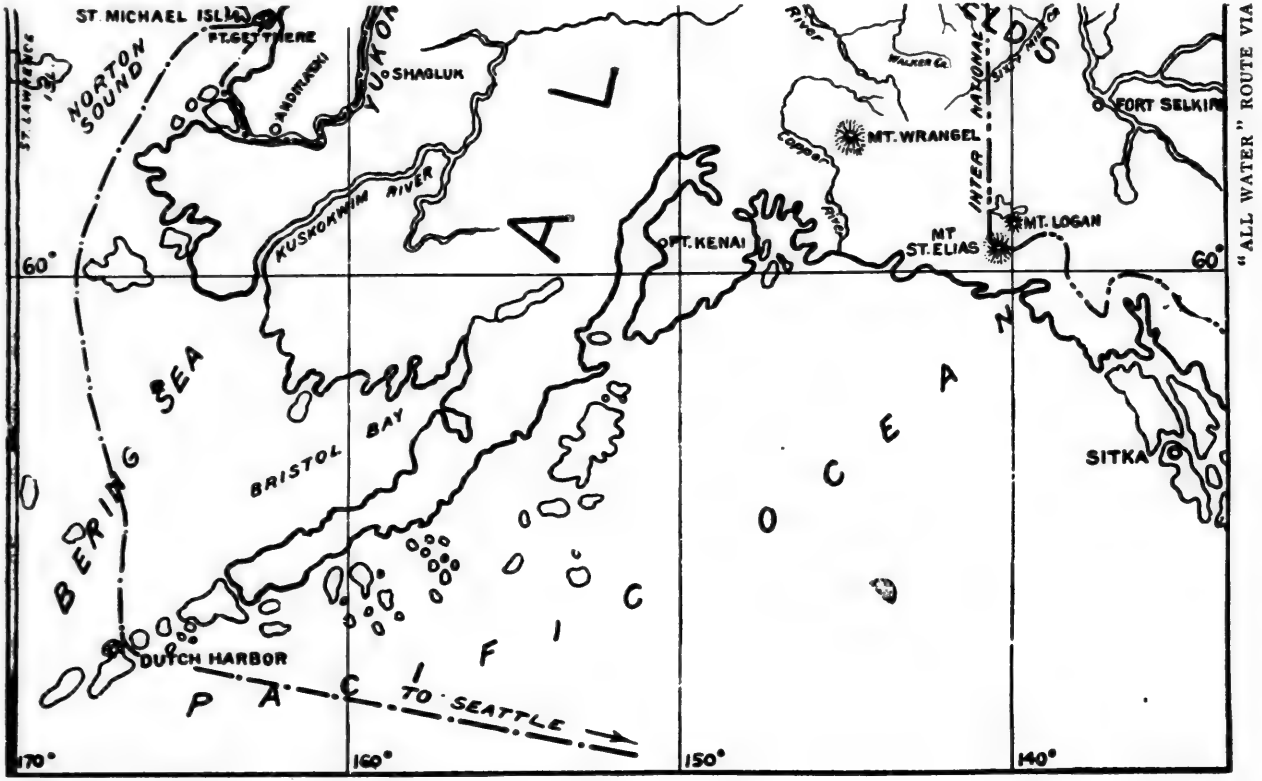
to the mines after the river had frozen into a safe highway.

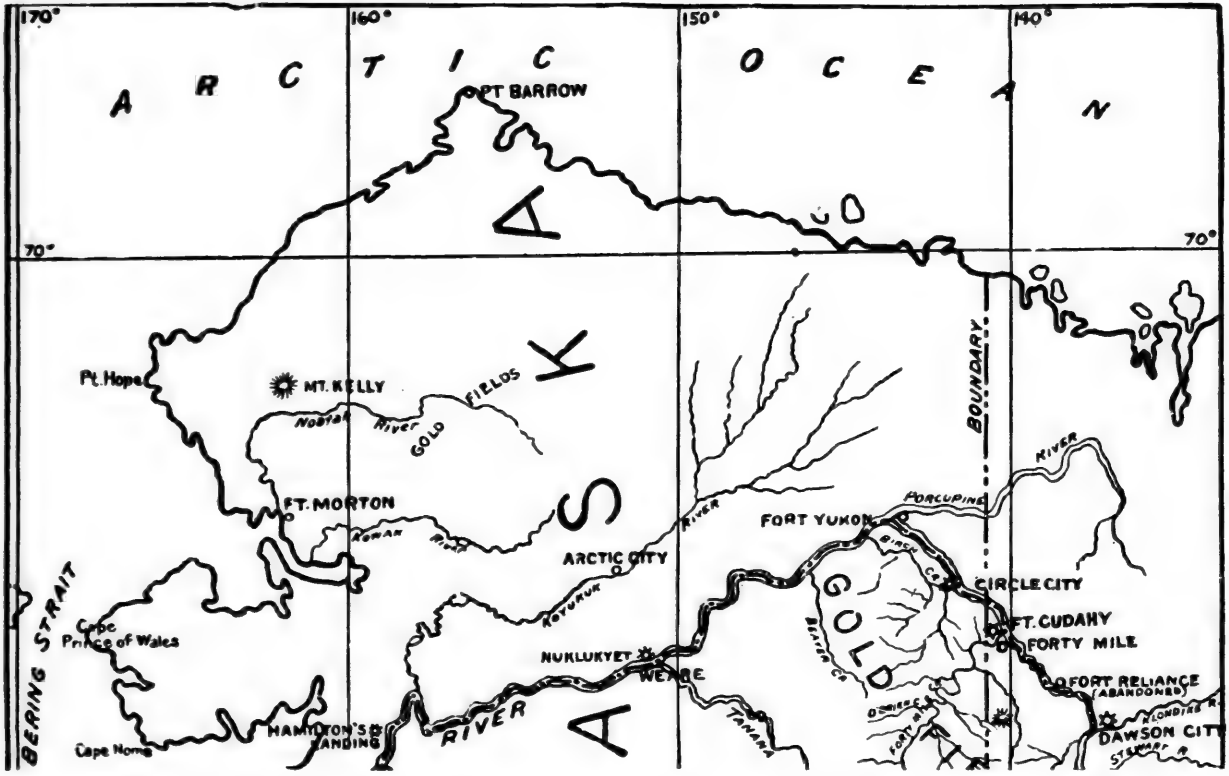
The distance from Seattle to Dawson City by way of St. Michael and the Yukon river according to the figures of the Alaska commercial company is 4,720 miles, as follows:

	Miles.
Seattle to St. Michael	3,000
St. Michael to Kutlik	100
Kutlik to Andreafski	125
Andreafski to Holy Cross	145
Holy Cross to Koserefsky	5
Koserefsky to Anvik	75
Anvik to Nulato	225
Nulato to Novikakat	145
Novikakat to Tanana	80
Tanana to Fort Yukon	450
Fort Yukon to Circle City	80
Circle City to Forty-Mile	240
Forty-Mile to Dawson City	52
Distance from Seattle	4,722

The other way of getting to the mines, commonly called the Juneau route, is much more direct, but it is broken by various methods of transportation. The first stage is a four days' trip from Seattle up the coast 900 miles to Juneau. This is the principal Alaskan port, a town of 5,000 inhabitants, and a very good outfitting point, as prices are but little higher than at the cities of Puget sound. Everything that a miner needs can be procured there in ordinary times, although such a rush as is expected might exhaust the resources of the town.

From Juneau there is yet another short stage by salt water—100 miles a little west of north, to the head of the Lynn canal, a long, narrow inlet. The landing at the


ST. MICHAEL ISLAND
PT. GET THERE
NORTON SOUND
ANDREAFSKI
YUKON
SHAGLUK
KUSKOKWIM RIVER
ALASKA
MT. WRANGEL
INTER NATIONAL
FORT SELKIRK
MT. LOGAN
MT ST. ELIAS
PT. KENAI
60°
BERING SEA
BRISTOL BAY
PACIFIC OCEAN
SITKA
DUTCH HARBOR
TO SEATTLE
170°
160°
150°
140°
"ALL WATER" ROUTE VIA



ST. MICHAEL AND YUKON RIVERS.

head of the inlet is called Dyea, and has a trading post, where the things that one inevitably has overlooked in the first outfitting may be purchased. There is also at Dyea a village of 200 or 300 Chilkoot Indians, who make their living by packing miners' outfits over Chilkoot pass, a portage of from twenty to thirty-two miles, according to which one of the chain of small lakes one chooses to begin fresh-water navigation.

The Indians have competition for a part of the distance, at least in packing goods over this portage. Some white contractors have trains of pack-horses that are used on the first twelve miles of the distance. During the last two seasons prices for transporting supplies from Dyea to Lake Bennett, which latter place is usually made the beginning of Yukon navigation, have varied from 5 cents a pound to 16 cents. In the event of there being 1,000 or 2,000 men at the pass at one time, the present service would be inadequate, and prices for packing, no doubt, would go to an extortionate figure. Naturally, this would oblige the majority of gold-seekers to do their own packing. A thousand pounds of goods could only be considered a fair outfit for one man, and if the man had to carry it himself, it would take him no less than a month to do it.

The next thing, after getting safely over the pass, is to build a boat. Four men who are handy with tools can take the standing spruce, saw out lumber and build a boat large enough to carry them and their 4,000 pounds of provisions all in a week. It should be a good, staunch boat, for there are storms to be encountered on the lakes, and rapids, moreover, that would shake a frail craft to pieces. The boat should have a sail that could be raised and lowered conveniently.

With boat built one starts from the head of Lake Ben-

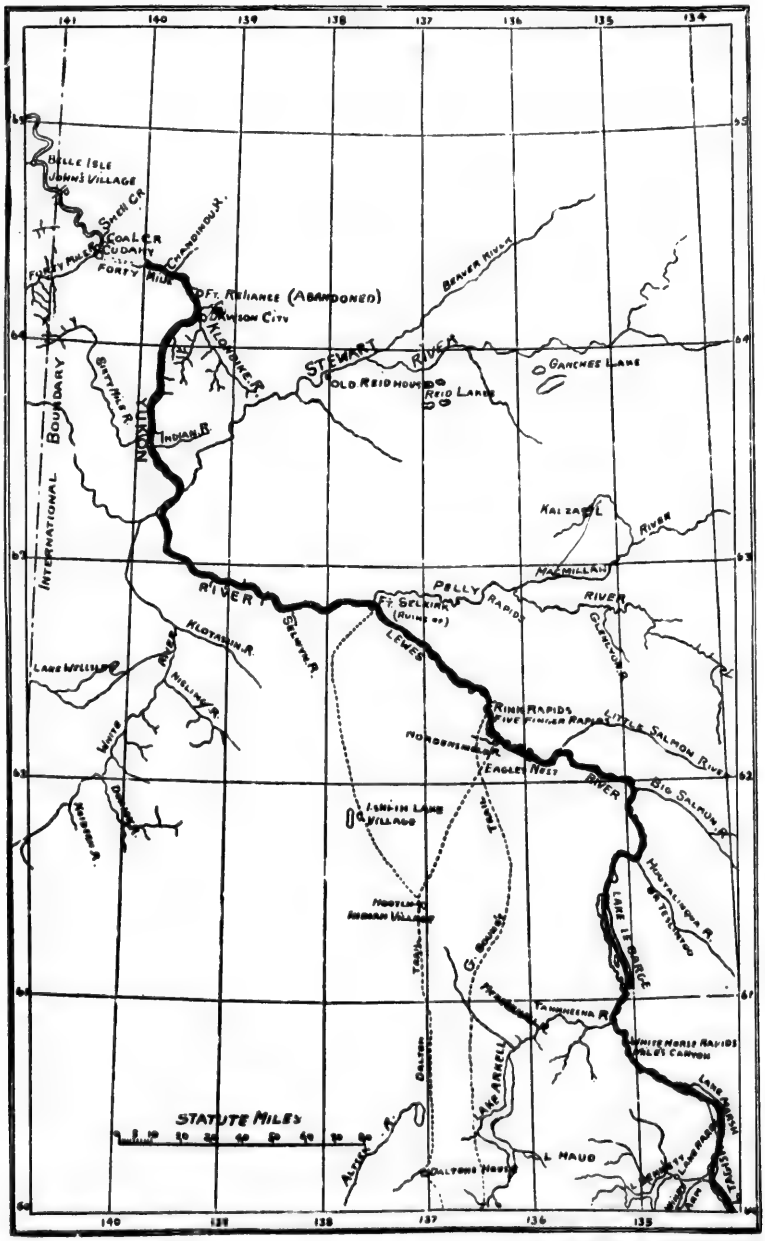
nett on the last stage of the trip—a sail of 600 miles down stream (not counting lakes) to Dawson City, at the mouth of the Klondike. With fair weather, at the evening of the second day one reaches Miles canyon, the beginning of the worst piece of water on the trip. The voyager has passed through Lake Bennett and Takish and Marsh lakes. At the head of Miles canyon begins three miles of indescribably rough water, which terminates in White Horse rapids.

During the rush of gold hunters it is probable there will be men at Miles canyon who will make a business of taking boats through the rapids, and unless one is an experienced river man it is economy to pay a few dollars for such service, rather than to take the greater chances of losing an outfit.

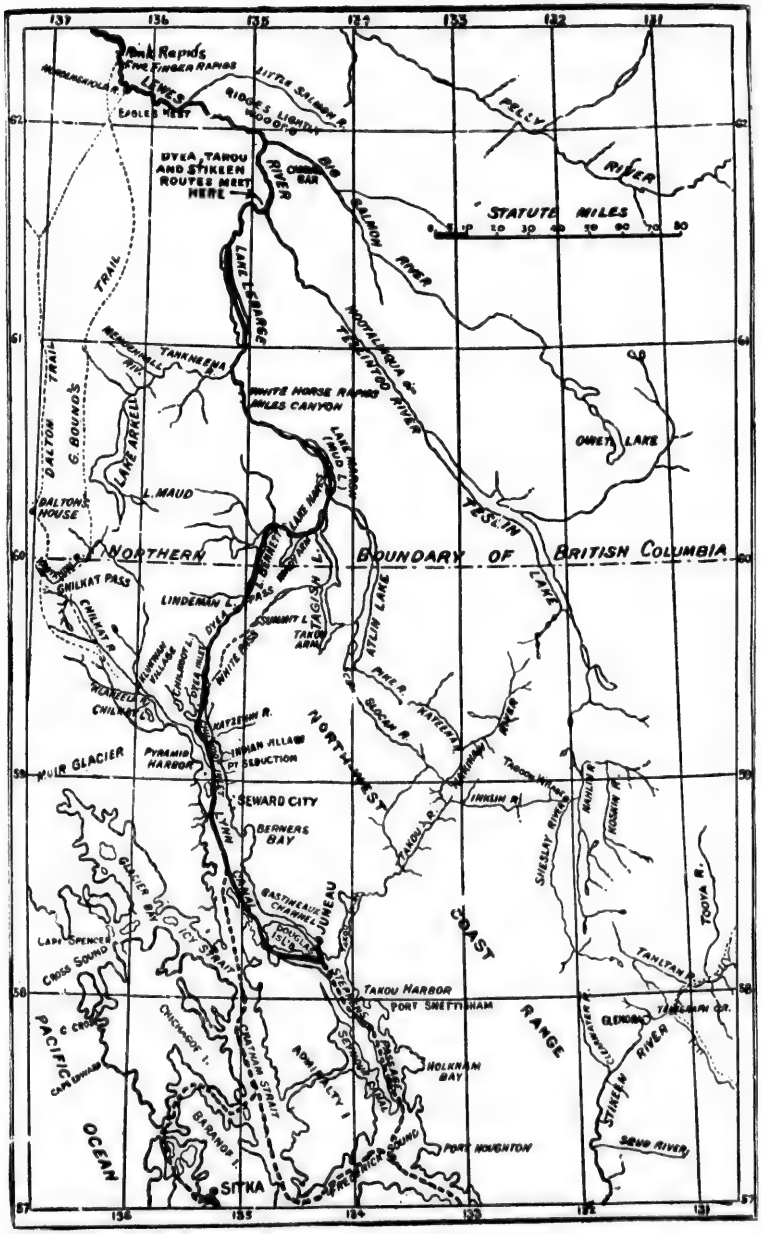
After the rapids comes Lake LeBarge, a beautiful sheet of water thirty-five miles long, and in this connection a suggestion is desirable. Near the foot of the lake, on the left side, is a creek coming in which marks a good game country. A year ago and in previous seasons moose were plentiful there, and in the rugged mountains nearer the head of the lake there always have been good hunting grounds for mountain sheep. A delay of a week either in this locality or almost any of the small streams that flow into the succeeding 200 miles of river, for the purpose of laying in a good supply of fresh meat, is worth considering. Moose meat that can be preserved until cold weather sets in will sell for a fancy price.

The first trading post and settlement of white men to be encountered on the river is at Fort Selkirk, opposite the mouth of Pelly river. Thence it is a little more than a day's run down to Sixty Mile, and it takes less than a day to go from Sixty Mile to Dawson City.

There is another suggestion to consider before arriv-



OVERLAND ROUTE VIA



DYEA, LEWES AND YUKON RIVERS.

ing at Sixty Mile. All along that part of the river are many timbered islands, covered with tall, straight spruce. With such an influx of prospectors as is expected at Dawson City before winter begins building logs will be in great demand. Cabin logs ten inches in diameter and twenty feet long, sold at Circle City last year, in the raft, at $3 each. With an increased demand, and with better mines, the prices at Dawson City may be much higher. Four men can handle easily a raft of 500 or 600 such logs. Getting them out would be a matter of only a week or two.

The distance from Seattle, via the Chilkoot pass route, according to figures made by the Northern Pacific railway, is as follows:

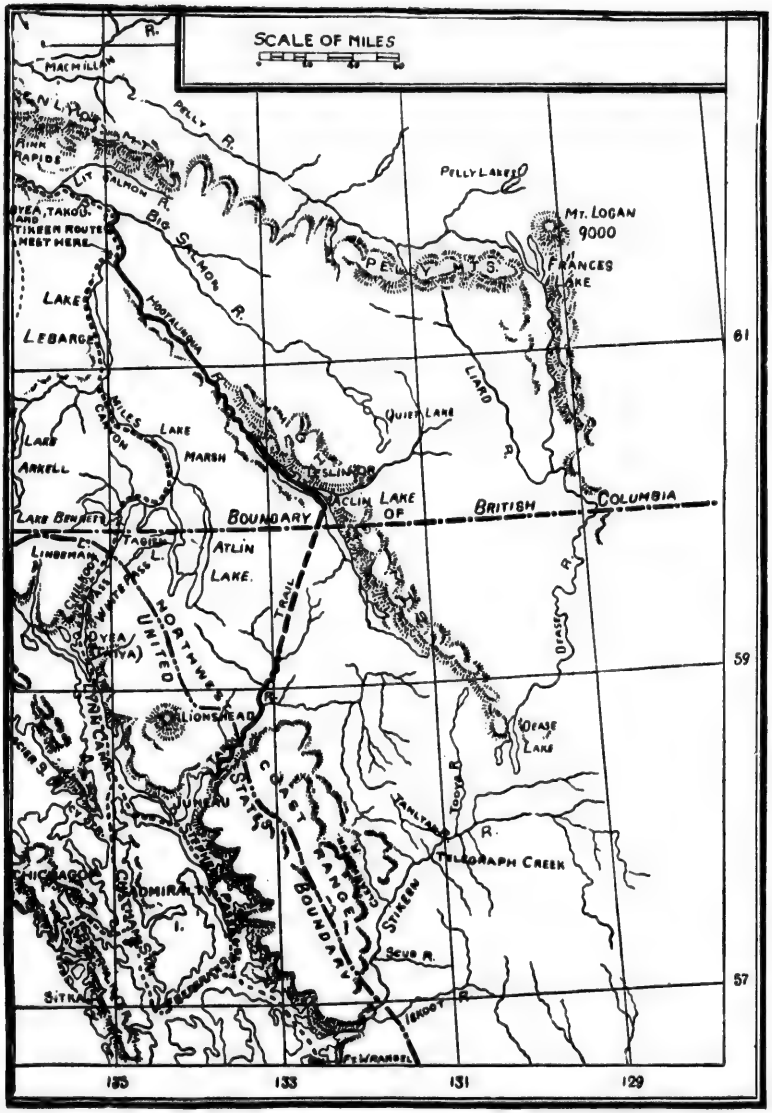
	Miles.	Miles.
Seattle to Juneau		899
*Juneau to Dyea		96
Dyea to Lake Lindeman	28	
Across Lake Lindeman	6	
Portage, Lindeman to Lake Bennett	1¼	
Across Lake Bennett to Cariboo Crossing.	30	
Across Tagish lake	19	
Six-Mile river to Marsh lake	6	
Across Marsh lake	20	
Fifty-Mile river from Marsh lake to Lake LeBarge	50	
Across Lake LeBarge	31	
Thirty-Mile river to Hootalinqua river	30	
Down Hootalinqua and Lewes rivers to Fort Selkirk	187	
Fort Selkirk down the Yukon to Dawson City	195	
Total distance from Dyea to Dawson City		603¼
Distance from Seattle		1,598¼

*If steamers, however, go direct to Dyea this distance would be shortened perhaps 20 miles.

What is known as the "Back Door" route to the Klondike, and sometimes called the Hudson Bay company's route, is by way of St. Paul to Edmonton, Northwest territory, on the Canadian Pacific railroad. It is said that prospectors will be able to enter the Klondike district much earlier in the year if they take this route. The Back Door route starts from St. Paul and Minneapolis by way of the Soo line and the Canadian Pacific, and is all rail as far as Edmonton. A stage line runs to Athabasca Landing on the Athabasca river, forty miles away. There the fortune hunter must provide himself with a canoe and head due north.

The Athabasca current will carry him into Athabasca lake, and finally into Great Slave lake, whence the Mackenzie river flows. From the mouth of the Mackenzie the Peel river must be taken south, and then by portage the Rocky mountain range is crossed. Just across the range the Stewart river opens the way to the Klondike route. The distance is given by the Hudson's Bay company as 1,882 miles, as follows:

	Miles.
Edmonton to Athabasca Landing	40
To Fort McMurray	240
Fort Chippewyan	185
Smith Landing	102
Fort Smith	16
Fort Resolution	194
Fort Providence	168
Fort Simpson	161
Fort Wrigley	136
Fort Norman	184
Fort Good Hope	174
Fort Macpherson	282
Total	1,882



TAKOU RIVER ROUTE.

It is claimed that there are but two portages, the first forty miles from Edmonton to Athabasca Landing and the second is a sixteen miles' trip at Smith Landing. This last portage, however, is easy to make, for the Hudson's Bay company has built a tramway which can be used. There are four or five other portages on the route, according to the Canadian Pacific officials, all of which are a few hundred yards in length.

The Back Door route is the old Hudson Bay trunk line, which was traveled by Sir John Franklin in 1825, and almost constantly used by the Indians and trappers ever since. It is down grade all the way. The Hudson's Bay company has small freight steamers plying wherever the water is of any depth. It is said that able-bodied men can make the trip from Edmonton to Fort Macpherson in fifty to sixty days. If they reach the mouth of the Mackenzie and find the Peel river frozen over they have the option of dog trains, and it is claimed that the use of the pack train cuts the difficulties of the Alaskan route in half. A. H. Heming of Montreal, who accompanied Casper Whitney, when Whitney made his explorations in the Barren lands, is authority for this statement:

"A party of three men with a canoe should reach Fort Macpherson easily in from fifty to sixty days, provided they are able-bodied young fellows with experience in that sort of travel. They will need to take canoes from here, unless they propose to hire Indians with large birch bark canoes to carry them. Birch bark canoes can be secured of any size up to the big ones manned by ten Indians that carry three tons. But birch barks are not reliable unless Indians are taken along to doctor them and keep them from getting water-logged. The Hudson's Bay com-

pany will also contract to take freight northward on their steamers until the close of navigation."

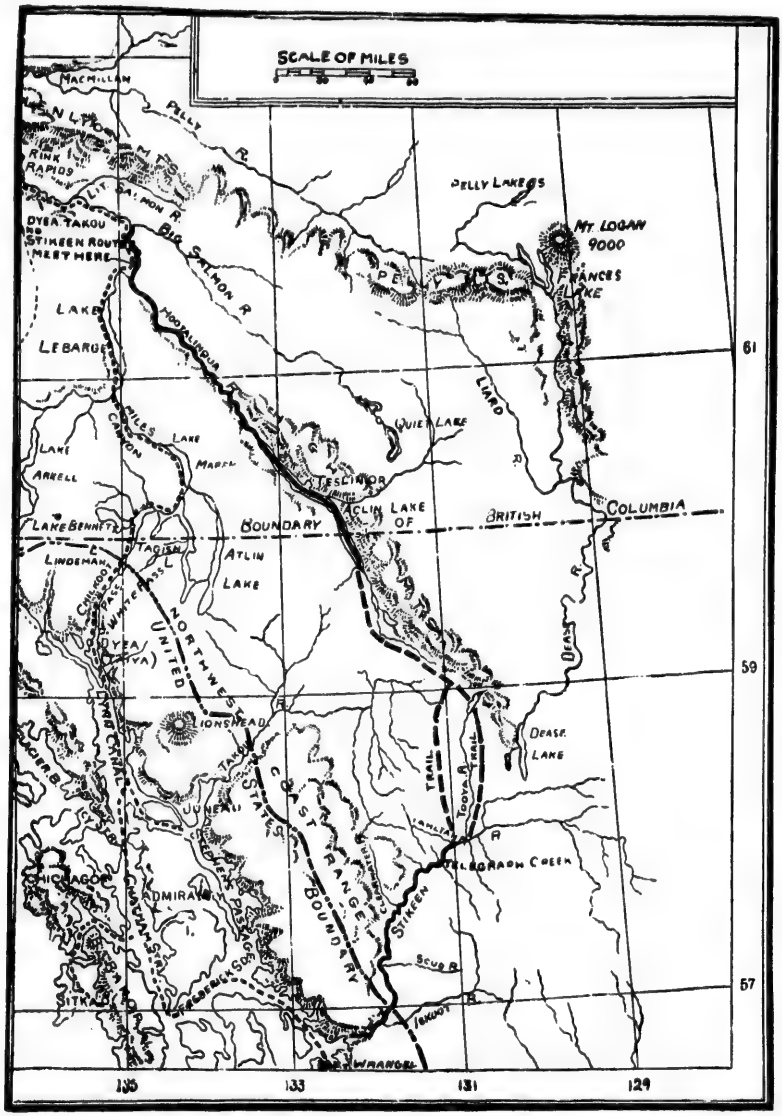
The rush through Chilkoot pass this year has congested that "thoroughfare" and has caused many people to look around for other ways for getting through the mountain ranges into the country where the head waters of the Yukon can be reached. The first regularly organized prospecting expedition which started for the Yukon in 1880 went through Chilkoot pass, and since then it has been looked upon as the only available one. The people of Juneau have been very partial to the Chilkoot pass, because all persons going by that route must pass through their city both going and coming. This perhaps has had something to do with the importance which Chilkoot pass has attained as a gateway to the Yukon country. Now, however, that the rush for the gold fields is on, with a prospect of a jam at Chilkoot pass next spring, the necessity has arisen for the investigation of other ways of breaking through the barrier of mountains.

One of the ways recommended is known as the Takou route. The entrance to this inlet is ten or twelve miles south of Juneau, and is navigable for the largest ocean vessel a distance of eighteen miles to the mouth of the Takou river. This river is navigable by canoe at all stages of the water for a distance of fifty-three miles to Nakinah river, where land travel has to begin. A distance of seventy miles must be traversed before Lake Teslin—one of the chain of lakes which form the head waters of the Yukon—is reached. From here the Yukon can be reached by boat with comparative ease. The total distance from Juneau to Lake Teslin is 150 miles.

The Yukon river is not navigable for steamers of light draught, except during freshets, which last about a month and usually occur in June. Indians say the river is open

from May to the middle of September for canoes carrying from two to four tons of freight. The wind during the summer is from the southwest and sails are used on the canoe, which greatly assists in working up against a four-mile current. At the end of the fourth day the mouth of the Nakinah river is reached. From here to Lake Teslin the journey must be made on foot. The course is up this stream until Katune creek is reached, four or five miles. Then the course is in a northeast direction over a low range of mountains, forming a beautiful and undulating country. According to the Indians, the snow in winter only falls here to a depth of from 18 to 24 inches. The vegetation in summer is luxuriant and thousands of head of stock could subsist. The country all the way from the inlet abounds with game, such as cariboo, deer, ground-hog, grouse, etc. The rivers and small lakes are alive with fish. Several varieties of berries were also found in great quantities.

On both sides of the Takou river up to the Nakinah the country is quite level, being bottom land, and with little expense a good wagon road, or, for that matter, a railroad, could be constructed. From Nakinah river until Teslin lake is reached there is no place over which a horse with a 200-lb. pack could not travel. The country traversed is generally dry. A few swamps are encountered, but no difficulty is found in getting around them. With a wagon road or even a trail the head of canoe navigation on the Takou to Lake Teslin, according to Indians, the thousands of people who are on their way to the Klondike could reach their destination without any delays or stoppages, and could take along almost any kind of an outfit. The steamers running north would call in at Takou inlet where a fleet of large canoes would take passengers to the head of navigation, and from there by



STIKEEN RIVER ROUTE.

trail to Lake Teslin and thence down the Yukon. This route would require not over twenty days' time to reach Klondike after leaving Puget sound.

Distances from Seattle to Dawson City over the Takou route approximate:

	Miles.
Seattle to Juneau	899
Juneau to Takou inlet	12
Takou inlet to mouth of Takou river	18
Takou river to Nakinah river	53
Nakinah river to Lake Teslin (overland)	70
Teslin lake to Dawson City, through Teslin lake, Hootalinqua river, Lewes river and Yukon river.	598
Juneau to Dawson City	1,650

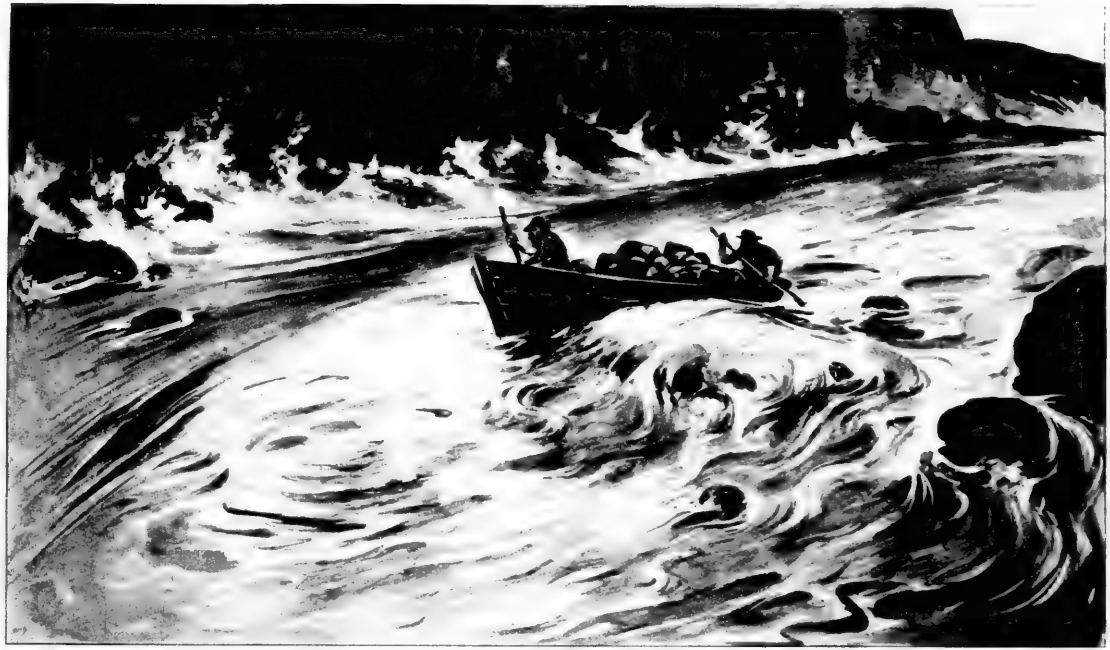
Another route recommended is by way of the Stikeen river, Telegraph creek and Lake Teslin to the Yukon. The Canadian government has decided to make a large grant for opening up an all-Canadian route to the Yukon by the Stikeen river, Telegraph creek and Lake Teslin. The trail has already been cut through from Telegraph creek to Lake Teslin, a distance of 150 miles. A. E. Mills, one of the party who worked on the trail, says, with the money proposed to be spent by the government this will be the best and easiest route to the Yukon, and the one that will be generally used next spring. The practicability of this route is best explained by Mr. Mills' account of the party's trip from Wrangel to Lake Teslin. He says:

"We left Fort Wrangel on May 17, and after a pleasant run up the Stikeen river 140 miles on a steamer we reached Telegraph creek. On the 23d of May we left to commence operations by following up Dease lake trail to Tahltan bridge, and then turning to the left up Tahltan river on the old Hudson Bay trail to a place

called Jimtown, where we camped. From this point we proposed to run over the level highland, thereby making a more direct route to the lake, but found that route would be impracticable on account of the snow, a large quantity being on the ground at the time, so that route was abandoned, and then it was decided to cut a new trail from Telegraph creek straight across on the left of Tahltan river, crossing the west fork about fifteen miles from Telegraph and five miles farther on connecting with the old Hudson Bay trail, making a saving of about twenty miles between the points mentioned.

"The old trail was cleared of all obstructions and followed to the old Hudson bay post, where some log buildings still stand. It is here that the only hill of any account was encountered, that being about three miles of heavy grade. However, I am sure this can be remedied by cutting a new trail around the hill, following the creek. The country in general is very open, and what timber there is is very small and scrubby. A good deal of swamp land is found and it is very mossy in places, but with some corduroy and ditching or draining a fine trail would be the result, and I believe it would be the best route to the Yukon. The trail runs through a valley from five to twenty miles wide, which is very level with the exception of the hill mentioned and a few gulches, on which we made good grades and got over easily.

"About thirty miles this side of Lake Teslin we reached the summit, where waters run north. I may say the headwaters of the Yukon commence from this point. A great number of lakes were found. The last fifteen miles was as good bottom as any found on the trail. Here we found a large river running into the lake, which I suppose is formed by the lakes mentioned and the surround-



MILES CANYON RAPIDS.

ing watershed. The lake was reached and we were within eight or ten days of Klondike, with smooth water and no portages.

"When the government grant is expended on the trail the trip could be made in twelve or fifteen days with a pack train from Telegraph creek, at per pound, say, 12 cents, and could leave by the middle of May in ordinary seasons and by the time the destination would be reached the ice would be out of the lakes. One very important feature of the trail is that abundant grass is to be found all the way."

Approximate distances from Seattle to Dawson City over the Stikeen route:

	Miles.
Seattle to Fort Wrangel	750
From Fort Wrangel up Stikeen river to Telegraph creek	150
Telegraph creek to Teslin lake (overland)	150
Teslin lake to Dawson City, through Teslin lake, Hootalinqua river, Lewes river and Yukon river.	598
Total distance from Seattle to Dawson City	1,648

One party of gold seekers followed the Stikeen route. A member of the party, Albert D. Gray, of Grand Rapids, Mich., describes the route fully. As the Stikeen route is to be developed and improved by the Canadian government, Mr. Gray's detailed description is of considerable value. He said:

"From Seattle we went to Fort Wrangel, 140 miles this side of Juneau, and there we took the 150-ton steamer Alaskan, which plies on the Stikeen river. The Stikeen river is very broad at some points and at others where it runs through canyons it narrows down to 100 feet or so, just room enough for the steamer to pass between the steep, rocky walls. Rapids were numerous, and fre-

quently the crew would have to go ashore and 'line' the steamer through a narrow rapid, where the water ran so swiftly that it made us dizzy; when nearing a bit of water of this kind the propeller was never used. After shutting down the machinery, lines would be attached to a steam capstan on the deck of the steamer. The ends of these lines then were made fast to trees on either side of the river, and by means of the steam capstan the boat was warped along cautiously until open water was reached.

"The weather was not so cold as we looked for, just bracing; the trail along the Stikeen follows the left bank of the river almost to the confluence of the Iskoot river, where it crosses the Stikeen, following the left bank of the Iskoot to Telegraph creek. At that point the trail trends to the west and north as far as the Tahlian river, following that course over a great flat plateau until the foot of Teslin, or Allen's, lake is reached. Telegraph creek is, as far as the Stikeen river, navigable.

"There were three others besides Chappell and myself in the party which reached Telegraph creek on the Alaskan. At the creek six white men and two Stick Indians joined our party. We hired the Indians to act as guides as far as the Cassiar gold diggings near Diese lake, seventy-two miles to the north of Telegraph creek. We started for Diese lake afoot, packing our provisions and supplies, of which we had an abundance, on thirteen horses. On this journey we made about six miles every twenty-four hours, going into camp whenever we felt like it.

"At the Cassiar diggings we found a few Chinamen working placers, but they made only a bare living, so our party after looking over the ground decided not to stay there. We concluded to push on for Lake Teslin,

which is about 140 miles to the north of Cassiar. Previous to that time some white men had been as far on that route as the Koukitchie lakes, seventy-five miles beyond Telegraph creek, but we blazed the trail from that point on to Lake Teslin and through to the Yukon river. It is probable that we made some deviations from what is now the known route. The tramp to Lake Teslin was not so very difficult, considering that we were in a country never before trodden by the foot of a civilized man. We had some trouble with rivers and creeks, and had to cut down trees and lay bridges across Nahlin river and Beebe creek. It is a comparatively safe and easy journey, nevertheless.

"On the 19th day of July we reached Lake Teslin. It is one of the most beautiful bodies of waters on the American continent. Its dimensions are about 130 miles long by an average of three and one-half miles wide. When we were there the ground was free of snow and vegetation was abundant. We remained in the vicinity of Lake Teslin some two or three weeks, when Chappell and I decided to leave the others and try to find our way to the Yukon river. Before setting out we prospected up the Nisulatine river, but found no gold. Upon leaving the lake my friend and I followed the Hootalinqua or Teslin river, a fine stream about 120 miles in length, toward the Klondike country. It flows into the Yukon just above the Klondike district, where it and Thirty-Mile or Lewes river join in practically forming the Yukon. Here all the trails into that country meet together in a great canyon in Seminow hills. Thirty-Mile river drains the lakes about Dyea pass.

"After leaving the mouth of the Hootalinqua we followed the Yukon slowly into Dawson City, which we reached on the 12th of October."

CHAPTER III.

THE GOLD SEEKER'S OUTFIT.

NEXT to a supply of ready cash a man who has designs upon the placer mines of the Klondike region will need at least one year's supply of food, clothing and working materials. This is the advice which is given by all who have returned from the scene of the great gold strikes. The miners and prospectors who have been to Alaska insist that no man should think of going to that country for the purpose of prospecting for gold without at least one year's supply of provisions and with a cash capital of at least $500 to $1,000.

Many of those who rushed for the Klondike this year failed to take this advice, and as a consequence large numbers were turned back by the Northwestern mounted police at the very gateway. Hundreds of lists of "essentials" have been made up by men who are experienced Alaska prospectors and miners. An analysis of twenty so-called practical lists indicates that the list makers had largely consulted their individual preferences as to the quantity and quality of certain kinds of rough and ready "delicacies."

This analysis shows that the man who has lived in Alaska among the gold-bearing creeks for anywhere from one to ten years figures that an adequate supply of food per day per man varies from four and a half to five and a half pounds. This would bring the actual food supply for one year for each person to fully 1,600

pounds. Highly carbonaceous food should predominate; stimulants of alcoholic character should be avoided.

One pound of tea is equal to seven pounds of coffee for drinking purposes; three-quarters of an ounce of saccharin (this concentrated sweet can be obtained from druggists) is equal to twenty-five pounds of sugar, so that three ounces of saccharin is equal to 100 pounds of sugar. Citric acid is a remedy for scurvy.

"Jack Carr," the famous Yukon mail carrier, has given a list for an outfit which, he says, will last one man one year in the Klondike district. This list follows:

Flour, pounds	400
Cornmeal, pounds	50
Rolled oats, pounds	50
Rice, pounds	35
Beans, pounds	100
Candles, pounds	40
Sugar, granulated, pounds	100
Baking powder, pounds	8
Bacon, pounds	200
Soda, pounds	2
Yeast cakes (6 in package) packages	6
Salt, pounds	15
Pepper, pounds	1
Mustard, pounds	½
Ginger, pounds	¼
Apples, evaporated, pounds	25
Peaches, evaporated, pounds	25
Apricots, evaporated, pounds	25
Fish, pounds	25
Pitted plums, pounds	10
Raisins, pounds	10
Onions, evaporated, pounds	50
Potatoes, evaporated, pounds	50
Coffee, pounds	24
Tea, pounds	5
Milk, condensed, dozen	4
Soap, laundry, bars	5

Matches, packages	60
Soup vegetables, pounds	15
Butter, sealed, cans	25
Tobacco, at discretion	..
Stove, steel	1
Gold pan	1
Granite buckets, 1 nest of	3
Cups	1
Plates (tin)	1
Knives and forks, each	1
Spoons—tea, 1 dozen	2
Whetstones	1
Coffee pot	1
Pick and handle	1
Saw, hand	1
Saw, whip	1
Hatchet	1
Shovels, ½ spring	2
Nails, pounds	20
Files	3
Drawknife	1
Ax and handle	1
Chisels, 3 sizes	3
Butcher knife	1
Hammer	1
Compass	1
Jack plane	1
Square	1
Yukon sleigh	1
Lash rope, ¼-inch, feet	60
Rope, ½-inch, feet	150
Pitch, pounds	15
Oakum, pounds	10
Frying pans	2

Woolen clothes.
Boots and shoes.
Snow-glasses.

If one is not going to build a boat, the oakum, pitch and tools can be dispensed with. In summer a sled is not necessary. Those going on a steamer by way of

St. Michael are recommended to take plenty of delicacies, costing little, but greatly appreciated. Above all, the caution is given, "take plenty."

The Northern Pacific railroad company has made up a list of supplies necessary for one man for one year for the Klondike mining outfit and the cost of the same at Seattle and Tacoma. The passenger officials of the road say that this list can be relied upon as containing everything that is needed:

Bacon, pounds	150
Flour, pounds	400
Rolled oats, pounds	25
Beans, pounds	125
Tea, pounds	10
Coffee, pounds	10
Sugar, pounds	25
Dried potatoes, pounds	25
Dried onions, pounds	2
Salt, pounds	15
Pepper, pounds	1
Dried fruits, pounds	75
Baking powder, pounds	8
Soda, pounds	2
Evaporated vinegar, pounds	½
Compressed soup, ounces	12
Soap, cakes	9
Mustard, cans	1
Matches (for four men), tins	1

Stove for four men.
Gold pan for each.
Set granite buckets.
Large bucket.
Knife, fork, spoon, cup and plate.
Frying pan.
Coffee and tea pot.
Scythe stone.
Two picks and one shovel.
One whipsaw.
Pack strap.

Two axes for four men and one extra handle.
Six 8-inch files and two taper files for party.
Drawing knife, brace and bits, jack plane and hammer, for party.
200 feet three-eighths-inch rope.
8 pounds of pitch and five pounds of oakum for four men.
Nails, five pounds each of 6, 8, 10 and 12-penny, for four men.
Tent, 10x12 feet, for four.
Canvas for wrapping.
Two oil blankets to each boat.
5 yards mosquito netting for each man.
3 suits heavy underwear.
1 heavy mackinaw coat.
2 pairs heavy mackinaw trousers.
1 heavy rubber-lined coat.
1 dozen heavy wool socks.
½ dozen heavy wool mittens.
2 heavy overshirts.
2 pairs heavy snagproof rubber boots.
2 pairs shoes.
4 pairs blankets (for two men).
4 towels.
2 pairs overalls.
1 suit oil clothing.

Besides these things each man procures a small assortment of medicines, and each is provided with several changes of summer clothing.

The foregoing outfit costs in round figures as follows:

Groceries	$ 40.00
Clothing	50.00
Hardware	50.00
Total	$140.00

The outfits purchased in Seattle by twenty experienced miners on their way to the Klondike are regarded as models by miners and prospectors who have returned from that region. The twenty men first divided them-

selves into five parties of four men each, intending to have a boat for each party as well as a tent, and various smaller articles. The main items of their outfits are as follows, the items, when not otherwise mentioned, being for one man:

Bacon, pounds 150
Flour, pounds 250
Rolled oats, pounds 25
Beans, pounds 100
Tea, pounds 10
Coffee, pounds 10
Sugar, pounds 40
Dried potatoes, pounds 25
Dried onions, pounds 2
Salt, pounds 10
Pepper, pounds 1
Dried fruits, pounds 75
Baking powder, pounds 4
Soda, pounds 2
Evaporated vinegar, pounds ..... ½
Compressed soup, ounces 12
Soap, cakes 9
Mustard, cans 1
Matches (for four men), tins 1
Rice, pounds 40

Stove for four men.
Gold pan for each.
Set granite buckets.
Large bucket.
Knife, fork, spoon, cup and plate.
Frying pan.
Coffee and tea pot.
Scythe stone.
Two picks and one shovel.
One whipsaw.
Pack strap.
Two axes for four men and one extra handle.
Six 8-inch files and two taper files for party.
Drawing knife, brace and bits, jack plane and hammer, for party.

200 feet 3-8-inch rope.
8 pounds of pitch and five pounds of oakum for four men.
Nails, five pounds each of 6, 8, 10 and 12-penny, for four men.
Shoemaker's thread.
Shoemaker's awl.
Gum for patching gum boots.
Tent, 10x12 feet, for four.
Canvas for wrapping.
Two oil blankets to each boat.
5 yards mosquito netting for each man.
3 suits heavy underwear.
1 heavy mackinaw coat.
2 pairs heavy mackinaw trousers.
½ dozen heavy wool socks.
½ dozen heavy wool mittens.
2 heavy overshirts.
2 pairs heavy snagproof rubber boots.
2 pairs shoes.
3 pairs blankets (for two men).
4 towels.
2 pairs overalls.
1 suit oil clothing.
2 rubber blankets.

Besides these things each man procures a small assortment of medicines, and each is provided with several changes of summer clothing.

Here is a list of medicines for four men:

25c worth cascara sagrada bark.
1 bottle good whisky.
3 boxes carbolic salve.
1 bottle arnica.

The above outfit cost in round figures as follows:

Groceries	$ 40.00
Clothing	50.00
Hardware	50.00
Total	$140.00

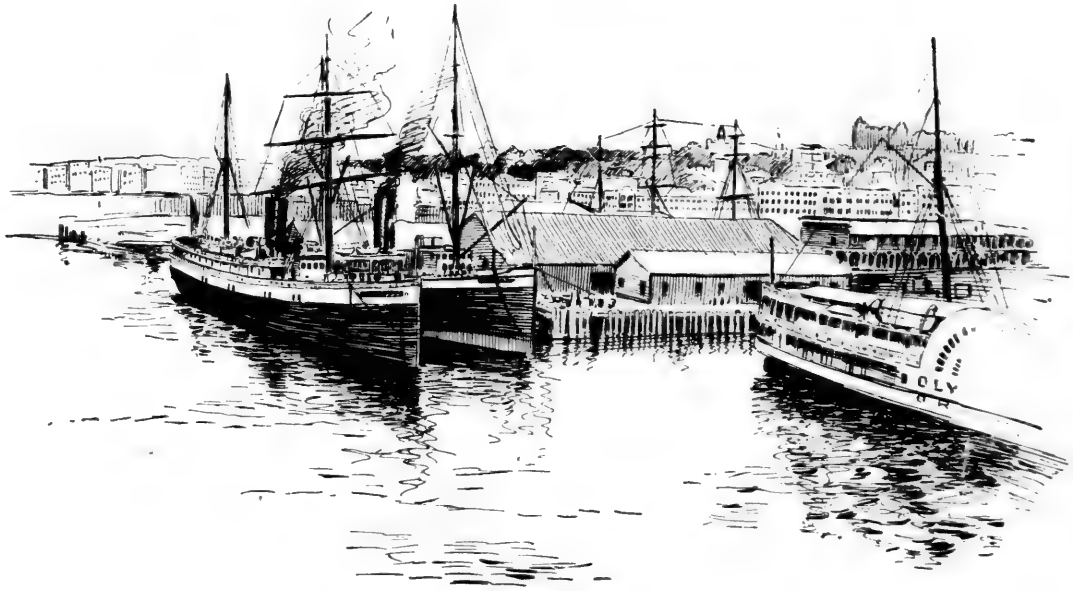
Fare to Dyea and incidentals brought the expense of these twenty prospectors up to about $175 each. They believe that they are very well supplied for a year's stay in the land of the midnight sun.

It will be noticed that the lists made up by the twenty miners and the list of the Northern Pacific railroad are identical in many respects, indicating that the miners based their estimates upon the estimate made by the railroad company. The miners made up their lists, however, after numerous consultations with returned miners in Seattle, and, as a result, made up a lighter pack.

A Seattle outfitting house, which has been in the business for a number of years, made out the following "standard" list of clothing, which the proprietor of the establishment said would weigh 140 pounds, and would be necessary, if the miner wanted to be really comfortable in the Klondike regions:

	Seattle price.	Forty Mile price.
Four suits wool underclothes	$20.00	$80.00
Two heavy sweaters	10.00	30.00
Two "mackinaws" or Havre shirts	20.00	60.00
Four pairs caribou mittens	8.00	20.00
Two fur caps	10.00	20.00
Two fur robes	90.00	200.00
Three pairs blankets	25.00	100.00
Three pairs overalls	3.00	25.00
Four pairs moccasins	15.00	20.00
One cape, with hood, "parkie"	15.00	30.00
Four heavy wool shirts	15.00	45.00
Three pairs rubber boots	15.00	75.00
Twelve pairs wool stockings	30.00	100.00
Totals	$276.00	$805.00

This outfitting establishment has adopted the following



WHARF AT SEATTLE.

list of supplies suitable for six months for one man on the Klondike:

Outfit.	Weight (lbs.)	Cost in Seattle.	Cost at Forty Mile.
Beans	100	$2.50	$10.00
Baking powder	10	5.00	20.00
Bacon	100	15.00	55.00
Butter	50	15.00	60.00
Coffee	25	7.50	35.00
Flour	400	11.00	75.00
Fruit (dried)	100	5.00	40.00
Lard	40	4.00	25.00
Matches	5	6.00	15.00
Milk (condensed)	25	5.00	50.00
Pepper	3	.75	5.00
Potatoes (dried)	100	5.00	30.00
Rice	20	1.00	10.00
Salt	10	1.00	5.00
Stove and utensils	110	90.00	400.00
Pick, shovel, ax, hatchet, etc.	20	15.00	125.00
Tea	25	8.00	40.00
Totals	1,143	$196.75	$1,000.00

The lists of supplies are intended as a guide for those who desire to make the trip to the Klondike overland, that is, through one of the several passes which will lead to the Lewes and Yukon river routes. The steamboats that run up the Yukon river to St. Michael are operated by companies who have store houses in Circle City, Fort Cudahy, Forty Mile, Dawson City and other points. These transportation and trading companies will not carry the "grub" supply for their passengers, so that prospectors who take the Yukon river route will not be able to purchase their food supply before they start.

While it is probable that gold seekers will be able to save some money by purchasing their supplies at home if

they are east of the Rocky mountains, it will be the better policy to purchase supplies in San Francisco, Seattle, Portland, Victoria or from whatever port the start is made. In those cities everything that will be required can be obtained, and the outfitting establishments and stores will pack the goods in a way which experience has proved to be the best.

Omer Maris, of the CHICAGO RECORD, who has made the trip overland and also down the Yukon, sent the following suggestion regarding boats from Seattle just before he sailed for Dyea Aug. 2, for the benefit of those who intend to go overland:

"The greatest demand for any particular thing is for boats. People, to save time in getting down the river, should take their boats with them. A half dozen carpenters or planing-mill establishments have caught the idea and are working night and day turning out knockdown boats. One that will carry a ton costs about $18 and weighs about 200 pounds. It is taken apart with no pieces more than six or seven feet long and packed for shipping. The demand is so good for these boats that the builders are several days behind with their orders. The principal objection to them is that the Indians and packers dislike to contract to carry them over the mountains on account of their awkward shape. One builder has now worked out a model for a galvanized iron boat that can be carried in sections fitting together like a "nest" of custard dishes and can be put together with small bolts. As a suggestion to those coming from the east, I would say that a canvas folding boat that will carry two tons and is constructed on good lines would be very available for the Yukon. A keel, mast and some additional bracing could be added after reaching the interior."

One of the miners who returned from the Yukon dis-

trict after five years in that country had this word of advice to give to tenderfeet:

"Very rarely is sufficient importance attached to the medical chest, which should have a place in every prospector's pack. In case of emergency, drugs and appliances for the relief of pain are invaluable. A supply of citric acid should be carried for the relief of scurvy. The astringent property of the lime or lemon is due to this acid. A few drops mixed with water and sugar makes excellent lemonade. The drug store can furnish saccharin tablets in place of sugar; three-quarters of an ounce of this concentrated sweet is equal to twenty-five pounds of sugar. It will be easily seen what a saving this would effect. An hundred pounds of sugar at 5½ cents per pound would be $5.50. Add to this 22 cents per pound for packing over the summit at Dyea, and the total cost is $27.50, besides the room it would take. Saccharin costs but $1.50 an ounce, and the three ounces, equal to 100 pounds of sugar, would cost but $4.50, the cost of packing being nominal for such small bulk.

"Some preparation for the reception of the myriads of mosquitoes is also necessary.

"The following articles would each be found of use, to be purchased in quantities according to the judgment of the individual: Liniment for sprains and cold on the lungs, tincture of iron to enrich the blood, extract of Jamaica ginger, laudanum, vaseline, carbolic ointment, salts, cough tablets, mustard and adhesive plasters, surgeon's lint, bandages, liver pills, powder for bleeding, absorbent cotton, surgeon's sponge, needles and silk, quinine capsules and toothache drops."

All supplies are subject to a tariff tax by the Canadian government, and if this policy is continued, gold seekers

must be prepared to pay the Canadian customs officials an entry tax as follows:

Shovels and spades, picks, etc., 25 per cent.
Horses, 20 per cent.
Axes, hatchets and adzes, 25 per cent.
Baking powder, 6 cents per pound.
Bed comforters, 32½ per cent.
Blankets, 5 cents per pound and 25 per cent.
Boats and ships' sails, 25 per cent.
Rubber boots, 25 per cent.
Boots and shoes, 25 per cent.
Breadstuffs, viz., grain, flour and meal of all kinds, 20 per cent.
Butter, 4 cents per pound.
Candles, 28 per cent.
Cartridges and ammunition, 30 per cent.
Cheese, 3 cents per pound.
Cigars and cigarettes, $2 per pound and 26 per cent.
Clothing—Socks, 10 cents per dozen pairs and 35 per cent.
Knitted goods of every description, 35 per cent.
Ready-made goods, partially of wool, 30 per cent.
Waterproof clothing, 35 per cent.
Coffee, condensed, 30 per cent; roasted, 2 cents per pound and 10 per cent; substitutes, 2 cents per pound; extracts, 3 cents per pound.
Condensed milk, 3 cents per pound.
Cotton knitted goods, 35 per cent.
Crowbars, 35 per cent.
Cutlery, 35 per cent.
Dogs, 20 per cent.
Drugs, 20 per cent.
Duck, from 20 to 30 per cent.
Earthenware, 30 per cent.
Edge tools, 35 per cent.
Fire arms, 20 per cent.
Fishhooks and lines, 25 per cent.
Flour, wheat, 75 cents per barrel; rye, 50 cents per barrel.
Fruits, dried, 25 per cent.

Fruits, prunes, raisins, currants, 1 cent per pound.
Fruits, jellies, jams, preserves, 3 cents per pound.
Fur caps, muffs, capes, coats, 25 per cent.
Furniture, 30 per cent.
Galvanized iron or tinware, 30 per cent.
Guns, 20 per cent.
Hardware, 32½ per cent.
Harness and saddlery, 30 per cent.
Jerseys, knitted, 35 per cent.
Lard, 2 cents per pound.
Linen clothing, 32½ per cent.
Maps and charts, 20 per cent.
Meats, canned, 25 per cent; in barrel, 2 cents per pound.
Oatmeal, 20 per cent.
Oiled cloth, 30 per cent.
Pipes, 35 per cent.
Pork, in barrel, 2 cents a pound.
Potatoes, 15 cents a bushel.
Potted meats, 25 per cent.
Powder, mining and blasting, 2 cents a pound.
Rice, 1 1-4 cents a pound.
Sacks or bags, 20 per cent.
Sawmills, portable, 30 per cent.
Sugar, 64-100 cents a pound.
Surgical instruments, 15 per cent.
Tents, 32½ per cent.
Tobacco, 42 cents per pound and 12½ per cent.

CHAPTER IV.

THE YUKON AND ITS BRANCHES.

BEFORE William Ogilvie, the famous explorer and the Dominion land surveyor of the Department of the Interior of the Canadian government, surveyed the entire distance from Dyea to the crossing of the international boundary line and the Yukon river, the information respecting the Yukon district was derived from hearsay and unreliable sources. Mr. Ogilvie is regarded as the best informed man in the world in regard to this district, which has become famous the world over since gold was struck on the Klondike. He has embodied a fund of information of the utmost value to prospectors in his report, which is just off the presses of the government printing bureau at Ottawa, Ontario.

His surveys of the Yukon and its tributaries were made for the purpose of giving to the Canadian government the information needed for taking up the question of improving the navigability of those rivers. As gold has been found in almost all of the creeks, streams and rivers named by Mr. Ogilvie in his valuable report, it is reprinted in these pages for the purpose of giving miners and prospectors authentic information derived from an official source. It is as follows:

"For the purpose of navigation a description of the Lewes river begins at the head of Lake Bennett. Above that point, and between it and Lake Lindeman, there

is only about three-quarters of a mile of river, which is not more than fifty or sixty yards wide, and two or three feet deep, and it is so swift and rough that navigation is out of the question.

"Lake Lindeman is about five miles long and a half mile wide. It is deep enough for all ordinary purposes. Lake Bennett is twenty-six and a quarter miles long, for the upper fourteen of which it is about half a mile wide. About midway in its length an arm comes in from the west, which Schwatka appears to have mistaken for a river, and named Wheaton river. This arm is wider than the other arm down to that point, and is reported by Indians to be longer and heading in a glacier which lies in the pass at the head of Chilkoot inlet. This arm is, as far as is seen, surrounded by high mountains, apparently much higher than those on the arm we traveled down. Below the junction of the two arms the lake is about one and a half miles wide, with deep water. Above the forks the water of the east branch is muddy. This is caused by the streams from the numerous glaciers on the head of the tributaries of Lake Lindeman.

"A stream which flows into Lake Bennett at the southwest corner is also very dirty, and has shoaled quite a large portion of the lake at its mouth. The beach at the lower end of this lake is comparatively flat and the water shoal. A deep, wide valley extends northwards from the north end of the lake, apparently reaching to the canyon, or a short distance above it. This may have been originally a course for the waters of the river. The bottom of the valley is wide and sandy, and covered with scrubby timber, principally poplar and pitch pine. The waters of the lake empty at the extreme northeast angle through a channel not more than 100 yards wide, which soon expands into what Schwatka called Lake Nares

(the connecting waters between Lake Bennett and Tagish lake constitute what is now called Caribou crossing). Through this narrow channel there is quite a current, and more than seven feet of water, as a six-foot paddle and a foot of arm added to its length did not reach the bottom.

"The hills at the upper end of Lake Lindeman rise abruptly from the water's edge. At the lower end they are neither so steep nor so high. Lake Nares is only two and a half miles long, and its greatest width is about a mile; it is not deep, but is navigable for boats drawing five or six feet of water; it is separated from Lake Bennett by a shallow, sandy point of not more than 200 yards in length. No streams of any consequence empty into either of these lakes. A small river flows into Lake Bennett on the west side, a short distance north of the fork, and another at the extreme northwest angle, but neither of them is of any consequence in a navigable sense.

"Lake Nares flows through a narrow curved channel into Bove lake (Schwatka). This channel is not more than 600 or 700 yards long, and the water in it appears to be sufficiently deep for boats that could navigate the lake. The land between the lakes along this channel is low, swampy and covered with willows, and at the stage in which I saw it, did not rise more than three feet above the water. The hills on the southwest side slope up easily, and are not high; on the north side the deep valley already referred to borders it; and on the east side the mountains rise abruptly from the lake shore.

"Bove lake (called Tagish lake by Dr. Dawson) is about a mile wide for the first two miles of its length, when it is joined by what the miners have called Windy arm. One of the Tagish Indians informed me they called it Takone lake. Here the lake expands to a width

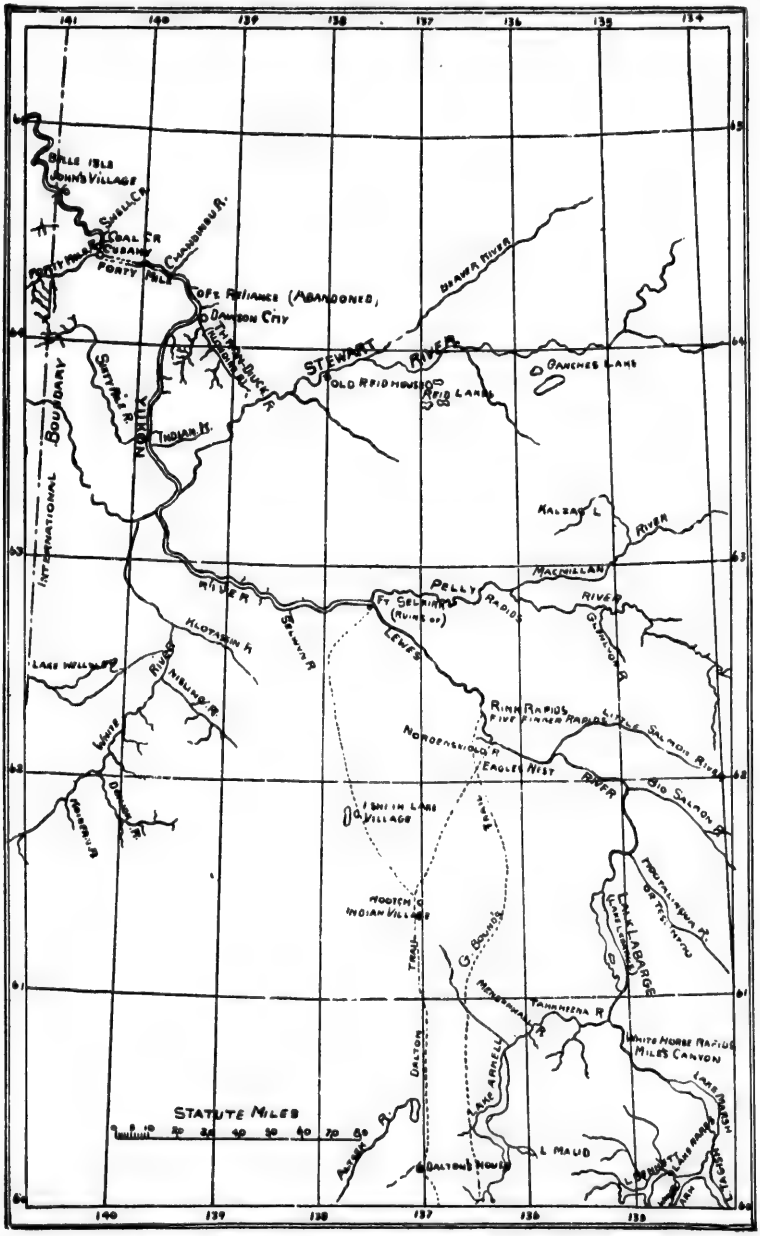
of about two miles for a distance of some three miles, when it suddenly narrows to about half a mile for a distance of a little over a mile, after which it widens again to about a mile and a half or more.

"Ten miles from the head of the lake it is joined by the Taku arm from the south. This arm must be of considerable length, as it can be seen for a long distance, and its valley can be traced through the mountains much farther than the lake itself can be seen. It is apparently over a mile wide at its mouth or junction.

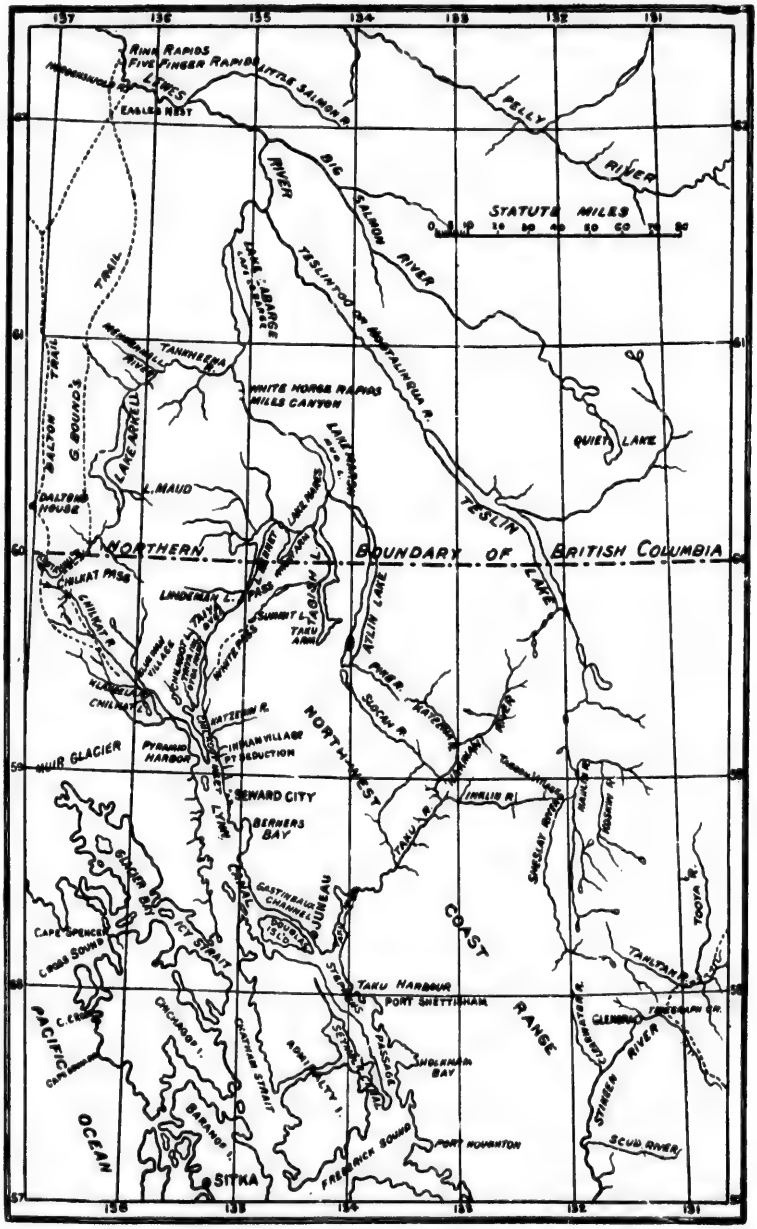
"Dr. Dawson includes Bove lake and these two arms under the common name of Tagish lake. This is much more simple and comprehensive than the various names given them by travelers. These waters collectively are the fishing and hunting grounds of the Tagish Indians, and as they are really one body of water, there is no reason why they should not be all included under one name.

"From the junction with the Taku arm to the north end of the lake the distance is about six miles, the greater part being over two miles wide. The west side is very flat and shallow, so much so that it was impossible in many places to get our canoes to the shore, and quite a distance out in the lake there was not more than five feet of water. The members of my party who were in charge of the boat and outfit went down the east side of the lake and reported the depth about the same as I found on the west side, with many large rocks. They passed through it in the night in a rain storm, and were much alarmed for the safety of the boat and provisions. It would appear that this part of the lake requires some improvement to make it in keeping with the rest of the water system with which it is connected.

"Where the river debouches from it, it is about 150



YUKON RIVER AND ITS BRANCHES, FROM REPORT OF WILLIAM OGILVIE, DOMINION SURVEYOR.



YUKON RIVER AND ITS BRANCHES, FROM REPORT OF WILLIAM OGILVIE, DOMINION SURVEYOR.

This is a combination of the Map on opposite page.

yards wide, and for a short distance not more than five or six feet deep. The depth is, however, soon increased to ten feet or more, and so continues down to what Schwatka calls Marsh lake. The miners call it Mud lake, but on this name they do not appear to be agreed, many of them calling the lower part of the Tagish or Bove lake 'Mud lake,' on account of its shallowness and flat, muddy shores, as seen along the west side, the side nearly always traveled, as it is more sheltered from the prevailing southerly winds. The term 'Mud lake' is, however, not applicable to this lake, as only a comparatively small part of it is shallow or muddy; and it is nearly as inapplicable to Marsh lake, as the latter is not markedly muddy along the west side, and from the appearance of the east shore one would not judge it to be so, as the banks appear to be high and gravelly.

"Marsh lake is a little over nineteen miles long, and averages about two miles in width. I tried to determine the width of it as I went along with my survey, by taking azimuths of points on the eastern shore from different stations of the survey; but in only one case did I succeed, as there were no prominent marks on that shore which could be identified from more than one place. The piece of river connecting Tagish and Marsh lakes is about five miles long, and averages 150 to 200 yards in width, and, as already mentioned, is deep, except for a short distance at the head. On it are situated the only Indian houses to be found in the interior with any pretention to skill in construction.

"The Lewes river, where it leaves Marsh lake, is about 200 yards wide, and averages this width as far as the canyon. I did not try to find bottom anywhere as I went along, except where I had reason to think it shallow, and there I always tried with my paddle. I did not any-

where find bottom with this, which shows that there is no part of this stretch of the river with less than six feet of water at medium height, at which stage it appeared to me the river was at that time.

"From the head of Lake Bennett to the canyon the corrected distance is ninety-five miles, all of which is navigable for boats drawing five feet or more. Add to this the westerly arm of Lake Bennett, and the Takone or Windy arm of Takish lake, each about fifteen miles in length, and the Taku arm of the latter lake, of unknown length, but probably not less than thirty miles, and we have a stretch of water of upwards of one hundred miles in length, all easily navigable; and, as has been pointed out, easily connected with Taiya inlet through the White pass.

"No streams of any importance enter any of these lakes so far as I know. A river, called by Schwatka 'McClintock river,' enters Marsh lake at the lower end from the east. It occupies a large valley, as seen from the westerly side of the lake, but the stream is apparently unimportant. Another small stream, apparently only a creek, enters the southeast angle of the lake. It is not probable that any stream coming from the east side of the lake is of importance, as the strip of country between the Lewes and Teslintoo is not more than thirty or forty miles in width at this point.

"The Taku arm of Tagish lake is, so far, with the exception of reports from Indians, unknown; but it is equally improbable that any river of importance enters it, as it is so near the source of the waters flowing northwards. However, this is a question that can only be decided by a proper exploration. The canyon I have already described, and will only add that it is five-eighths of a mile

long, about 100 feet wide, with perpendicular banks of basaltic rock from 60 to 100 feet high.

"Below the canyon proper there is a stretch of rapids for about a mile; then about half a mile of smooth water, following which are the White Horse rapids, which are three-eighths of a mile long, and unsafe for boats. The total fall in the canyon and succeeding rapids was measured and found to be 32 feet. Were it ever necessary to make this part of the river navigable it will be no easy task to overcome the obstacles at this point; but a tram or railway could, with very little difficulty, be constructed along the east side of the river past the canyon.

"For some distance below the White Horse rapids the current is swift and the river wide, with many gravel bars. The reach between these rapids and Lake Le Barge, a distance of twenty-seven and a half miles, is all smooth water, with a strong current. The average width is about 150 yards. There is no impediment to navigation other than the swift current, and this is no stronger than on the lower part of the river, which is already navigated; nor is it worse than on the Saskatchewan and Red rivers in the more eastern part of our territory.

"About midway in this stretch the Tahkeena river (the Tahkeena was formerly much used by the Chilkat Indians as a means of reaching the interior, but never by the miners, owing to the distance from the sea to its head) joins the Lewes. This river is, apparently, about half the size of the latter. Its waters are muddy, indicating its passage through a clayey district. I got some indefinite information about this river from an Indian who happened to meet me just below its mouth, but I could not readily make him understand me, and his replies were a compound of Chinook, Tagish, and signs, and therefore largely unintelligible. From what I could

understand with any certainty, the river was easy to descend, there being no bad rapids, and it came out of a lake much larger than any I had yet passed.

"Lake Le Barge is thirty-one miles long. In the upper thirteen it varies from three to four miles in width; it then narrows to about two miles for a distance of seven miles; when it begins to widen again, and gradually expands to about two and a half or three miles, the lower six miles of it maintaining the latter width. The survey was carried along the western shore, and while so engaged I determined the width of the upper wide part by triangulation at two points, the width of the narrow middle part at three points, and the width of the lower part at three points. Dr. Dawson on his way out made a track survey of the eastern shore. The western shore is irregular in many places, being indented by large bays, especially at the upper and lower ends. These bays are, as a rule, shallow, more especially those at the lower end.

"Just above where the lake narrows in the middle there is a large island. It is three and a half miles long and about half a mile in width. It is shown on Schwatka's map as a peninsula, and called by him Ritchtofen rocks. How he came to think it a peninsula I cannot understand, as it is well out in the lake; the nearest point of it to the western shore is upwards of half a mile distant, and the extreme width of the lake here is not more than five miles, which includes the depth of the deepest bays on the western side. It is therefore difficult to understand that he did not see it as an island. The upper half of this island is gravelly, and does not rise very high above the lake. The lower end is rocky and high, the rock being of a bright red color. At the lower end of the lake there is a large valley extending northward, which has

evidently at one time been the outlet of the lake. Dr. Dawson has noted it and its peculiarities.

"The width of the Lewes river as it leaves the lake is the same as at its entrance, about 200 yards. Its waters when I was there were murky. This is caused by the action of the waves on the shore along the lower end of the lake. The water at the upper end and at the middle of the lake is quite clear, so much so that the bottom can be distinctly seen at a depth of six or seven feet. The wind blows almost constantly down this lake, and in a high wind it gets very rough. The miners complain of much detention owing to this cause, and certainly I cannot complain of a lack of wind while I was on the lake. This lake was named after one Mike Le Barge, who was engaged by the Western Union telegraph company, exploring the river and adjacent country for the purpose of connecting Europe and America by telegraph through British Columbia, and Alaska, and across Bering strait to Asia, and thence to Europe.

"After leaving Lake Le Barge the river, for a distance of about five miles, preserves a generally uniform width and an easy current of about four miles per hour. It then makes a short turn round a low gravel point, and flows in exactly the opposite of its general course for a mile, when it again turns sharply to its general direction.

"The Teslintoo was so called by Dr. Dawson—this, according to information obtained by him, being the Indian name. It is called by the miners 'Hootalinkwa,' or Hootalinqua, and was called by Schwatka, who appears to have bestowed no other attention to it, the Newberry, although it is apparently much larger than the Lewes. (The limited amount of prospecting that has been done on the Teslintoo is said to be very satisfactory, fine gold having been found in all parts of the river. The

lack of supplies is the great drawback to its development, and this will not be overcome to any great extent until by some means heavy freight can be brought over the coast range to the head of the river. Indeed, owing to the difficulties attending access and transportation, the great drawback to the entire Yukon district at present is the want of heavy mining machinery and the scarcity of supplies. The government being aware of the requirements and possibilities of the country has undertaken the task of making preliminary surveys for trails and railroads, and no doubt in the near future the avenue for better and quicker transportation facilities will be opened up.)

"The water of the Teslintoo is of a dark brown color, similar in appearance to the Ottawa river water, and a little turbid. Notwithstanding the difference of volume of discharge, the Teslintoo changes completely the character of the river below the junction, and a person coming up the river would, at the forks, unhesitatingly pronounce the Teslintoo the main stream. The water of the Lewes is blue in color, and at the time I speak of was somewhat dirty—not enough so, however, to prevent one seeing to a depth of two or three feet.

"At the junction of the Lewes and Teslintoo I met two or three families of the Indians who hunt in the vicinity. One of them could speak a little Chinook. He told me the river was easy to ascend, and presented the same appearance eight days' journey up as at the mouth; then a lake was reached, which took one day to cross, the river was then followed again for half a day to another lake, which took two days to traverse; into this lake emptied a stream which they used as a highway to the coast, passing by way of the Taku river. He said it took four days when they had loads to carry, from the

head of canoe navigation on the Teslintoo to salt water on the Taku inlet, but when they come light they take only one to two days.

"If their time intervals are approximately accurate, they mean that there are about 200 miles of good river to the first lake, as they ought easily to make 25 miles a day on the river as I saw it. The lake takes one day to traverse, and is at least 25 miles long, followed by say 12 of river, which brings us to the large lake, which takes two days to cross, say 50 or 60 miles more—in all about 292 miles—say 300 to the head of canoe navigation; while the distance from the head of Lake Bennett to the junction is only 188. Assuming the course of the Teslintoo to be nearly south (it is a little to the east of it), and throwing out every fourth mile for bends, the remainder gives us an arc three degrees and a quarter of latitude, which deducted from 60° 40′, the latitude of the junction, gives us 58° 25′, or nearly the latitude of Juneau.

"I afterwards met T. Boswell, his brother, and another miner, who had spent most of the summer on the river prospecting, and from them I gathered the following: The distance to the first, and only lake they saw, they put at 175 miles, and the lake itself they call at least 150 miles long, and it took them four days to row in a light boat from end to end. The portage to the sea they did not appear to know anything about, but describe a large bay on the east side of the lake, into which a river of considerable size entered. This river occupies a wide valley, surrounded by high mountains. They thought this river must head near Liard river. This account differs materially from that given by the Indian, and to put them on their guard, I told them what he had told me, but they still persisted in their story, which I find differs a

good deal from the account they gave Dr. Dawson, as incorporated in his report.

"Between the Teslintoo and the Big Salmon, so called by the miners, or D'Abbadie by Schwatka, the distance is thirty-three and a half miles, in which the Lewes preserves a generally uniform width and current. For a few miles below the Teslintoo it is a little over the ordinary width, but then contracts to about 200 yards, which it maintains with little variation. The current is generally from four to five miles per hour. The Big Salmon I found to be about 100 yards wide near the mouth, the depth not more than four or five feet, and the current, so far as could be seen, sluggish.

"Just below the Big Salmon the Lewes takes a bend of nearly a right angle. Its course from the junction with the Tehkeena to this point is generally a little east of north; at this point it turns to nearly west for some distance. Its course between here and its confluence with the Pelly is northwest, and, I may add, it preserves this general direction down to the confluence with the Porcupine. Thirty-six and a quarter miles below the Big Salmon, the Little Salmon—the Daly of Schwatka—enters the Lewes. This river is about sixty yards wide at the mouth, and not more than two or three feet in depth. The water is clear and of a brownish hue; there is not much current at the mouth, nor as far as can be seen up the stream. It is said that some miners have prospected this stream, but I could learn nothing definite about it.

"Lewes river makes a turn here to the southwest, and runs in that direction six miles, when it again turns to the northwest for seven miles, and then makes a short, sharp turn to the south and west around a low, sandy point, which will at some day in the near future be cut through by the current, which will shorten the river three or four

miles. Eight miles below Little Salmon river a large rock called the Eagle's Nest, stands up in a gravel slope on the easterly bank of the river. It rises about five hundred feet above the river, and is composed of a light gray stone. Thirty-two miles below Eagle's Nest rock Nordenskiold river enters from the west. It is an unimportant stream, being not more than 120 feet wide at the mouth, and only a few inches deep. The valley, as far as can be seen, is not extensive, and being very crooked it is hard to tell what its general direction is. The Lewes, between the Little Salmon and the Nordenskiold, contains a width of from 200 to 300 yards, with an occasional expansion where there are islands. It is serpentine in its course most of the way, and where the Nordenskiold joins it is very crooked, running several times under a hill, named by Schwatka Tantalus Butte, and in other places leaving it, for a distance of eight miles. The distance across from point to point is only half a mile.

"Below this to Five Finger rapids, so called from the fact that five large masses of rock stand in mid-channel, the river assumes its ordinary straightness and width, with a current from four to five miles per hour. I do not think the rapids will prove anything more than a slight obstruction in the navigation of the river. A boat of ordinary power would probably have to help herself up with windlass and line in high water. Below the rapids, for about two miles, the current is strong—probably six miles per hour—but the water seems to be deep enough for any boat that is likely to navigate it. Six miles below this the Rink rapids are situated. They are of no great importance, the westerly half of the stream only being obstructed. The easterly half is not in any way affected, the current being smooth and the water deep.

"Below Five Finger rapids about two miles a small stream enters from the east. It is called by Dr. Dawson Tatshun river. It is not more than thirty or forty feet wide at the mouth, and contains only a little brownish water. Between Five Finger rapids and Pelly river, 58½ miles, no streams of any importance enter the Lewes; in fact, with the exception of the Tatshun, it may be said that none at all enter. About a mile below Rink rapids the river spreads out into a lake-like expanse, with many islands; this continues for about three miles, when it contracts to something like the usual width; but bars and small islands are very numerous all the way to Pelly river. About five miles above Pelly river there is another lake-like expanse filled with islands. The river here for three or four miles is nearly a mile wide, and so numerous and close are the islands that it is impossible to tell, when floating among them, where the shores of the river are. The current, too, is swift, leaving one to suppose the water shallow; but I think even here a channel deep enough for such boats as will navigate this part of the river can be found. Schwatka named this group of islands 'Ingersoll Islands.'

"About a mile below the Pelly the Lewes is about half a mile wide, and here, too, there are many islands, but not in groups as at Ingersoll islands. About a mile below the Pelly, just at the ruins of Fort Selkirk, the Yukon was found to be 565 yards wide; about two-thirds being ten feet deep, with a current of about four and three-quarters miles per hour; the remaining third was more than half taken up by a bar, and the current between it and the south shore was very slack. Pelly river at its mouth is about 200 yards wide, and continues this width as far up as could be seen.

"Just here for a short distance the course of the Yukon

is nearly west, and on the south side, about a mile below the mouth of the Lewes, stands all that remains of the only trading post ever built by white men in the district. This post was established by Robert Campbell, for the Hudson Bay company in the summer of 1848. Indians pillaged the place and set fire to it, leaving nothing but the remains of the two chimneys, which are still standing. This raid and capture took place on the first of August, 1852. Below Fort Selkirk the Yukon river is from 500 to 600 yards broad and maintains this width down to White river, a distance of ninety-six miles. Islands are numerous, so much so that there are very few parts of the river where there are not one or more in sight. Bars are also numerous, but almost all are composed of gravel, so that navigators will not have to complain of shifting sand-bars. The current, as a general thing, is not so rapid as in the upper part of the river, averaging about four miles per hour. The depth in the main channel was always found to be more than six feet.

"From Pelly river to within 12 miles of White river the general course of the river is a little north of west; it then turns to the north, and the general course as far as the site of Fort Reliance is due north. White river enters the main river from the west. At the mouth it is about 200 yards wide, but a great part of it is filled with ever-shifting sand-bars, the main volume of water being confined to a channel not more than 100 yards in width. The current is very strong, certainly not less than eight miles per hour. The color of the water bears witness to this, as it is much the muddiest of any I have ever seen. Between White and Stewart rivers, ten miles, the river spreads out to a mile and upwards in width, and is a maze of islands and bars. The survey was carried down the easterly shore and many of the channels passed through

barely afforded water enough to float the canoes. The main channel is along the westerly shore, down which the large boat went, and the crew reported plenty of water.

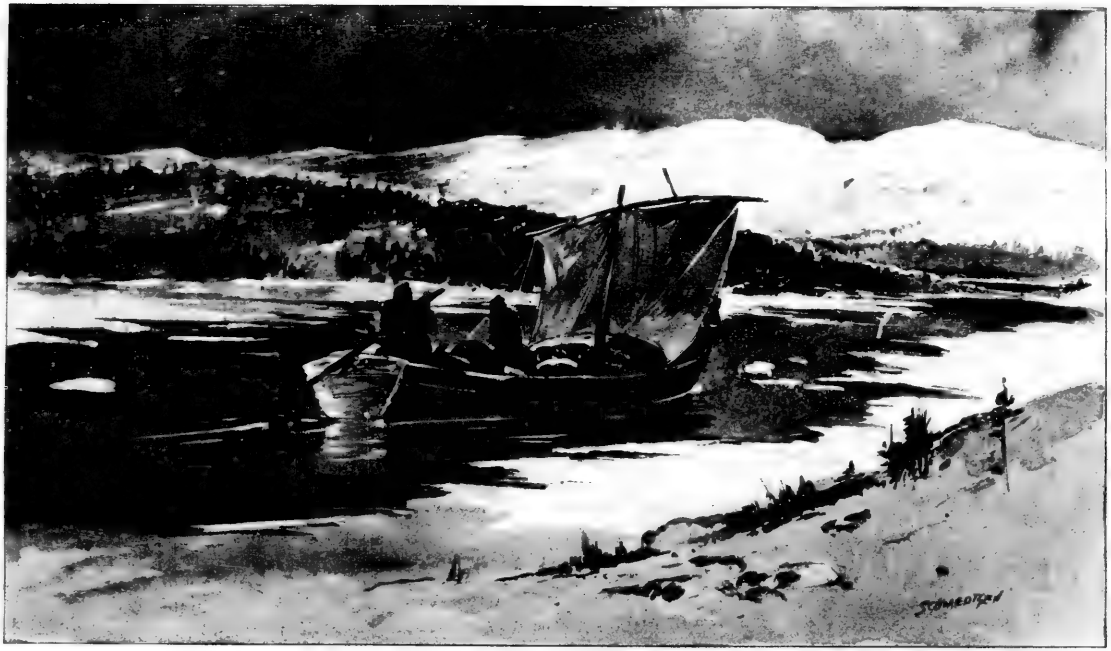
Stewart river enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north side in steps or terraces to distant hills of considerable height. The river half a mile or so above the mouth, is 200 yards in width. The current is slack and the water shallow and clear, but dark colored. While at the mouth I was fortunate enough to meet a miner who had spent the whole summer of 1887 on the river and its branches prospecting and exploring. He gave me a good deal of information, of which I give a summary. He is a native of New Brunswick, Alexander MacDonald by name, and has spent some years mining in other places, but was very reticent about what he had made or found. Sixty or seventy miles up the Stewart a large creek enters from the south which he called Rosebud creek or river, and thirty or forty miles farther up a considerable stream flows from the northeast, which appears to be Beaver river, as marked on the map of that part of the country.

"From the head of this stream he floated down on a raft, taking five days to do so. He estimated his progress at forty or fifty miles each day, which gives a length of from 200 to 250 miles. This is probably an overestimate, unless the stream is very crooked, which, he stated, was not the case. As much of his time would be taken up in prospecting I should call thirty miles or less a closer estimate of his progress. This river is from fifty to eighty yards wide and was never more than four or five feet deep, often being not more than two or three; the current, he said, was not at all swift. Above the

mouth of this stream the main river is from 100 to 130 yards wide, with an even current and clear water. Sixty or seventy miles above the last-mentioned branch another branch joins, which is possibly the main river. At the head of it he found a lake nearly thirty miles long and averaging a mile and a half in width, which he called Mayhew lake.

"Thirty miles or so above the forks on the other branch there are falls, which MacDonald estimated to be from 100 to 200 feet in height. MacDonald went on past the falls to the head of this branch and found terraced gravel hills to the west and north. He crossed them to the north and found a river flowing northward. On this he embarked on a raft and floated down it for a day or two, thinking it would turn to the west and join the Stewart, but finding it still continuing north, and requiring too much volume to be any of the branches he had seen while passing up the Stewart, he returned to the point of his departure, and after prospecting among the hills around the head of the river, he started westward, crossing a high range of mountains composed principally of shales, with many thin seams of what he called quartz, ranging from one to six inches in thickness. On the west side of this range he found a river flowing out of what he called Mayhew lake, and crossing this got to the head of Beaver river, which he descended as before mentioned. It is probable the river flowing northwards, on which he made a journey and returned, was a branch of Peel river. Judging from all I could learn it is probable a light draft steamboat could navigate nearly all of Stewart river and its tributaries.

"From Stewart river to the site of Fort Reliance, seventy-three and one-quarter miles, the Yukon is broad



STARTING AT HEADWATERS.

and full of islands. The average width is between a half and three-quarters of a mile, but there are many expansions where it is over a mile in breadth; however, in these places it cannot be said that the waterway is wider than at other parts of the river, the islands being so large and numerous. In this reach no streams of any importance enter. About thirteen miles below Stewart river a large valley joins that of the river, but the stream occupying it is only a large creek. This agrees in position with what has been called Sixty Mile creek, which was supposed to be about that distance above Fort Reliance, but it does not agree with descriptions which I received of it; moreover as Sixty Mile creek is known to be a stream of considerable length this stream would not answer the description.

"Twenty-two and a half miles from Stewart river another and larger creek enters from the same side; it agreed with the description of Sixty Mile creek and I have so marked it on my map. This stream is of no importance except for what mineral wealth may be found on it. Six and a half miles above Fort Reliance the Thron-Diuck river of the Indians (Deer river of Schwatka, the Klondike) enters from the east. It is a small river, about forty yards wide at the mouth, and shallow; the water is clear and transparent, and of beautiful blue color. Dawson City is situated at the mouth of the Thron-Diuck, and although it was located only a few months ago it is the scene of great activity. Very rich deposits of gold have lately been found on Bonanza creek and other affluents of the Thron-Diuck.

"Twelve and a half miles below Fort Reliance, the Chandindu, as named by Schwatka, enters from the east. It is thirty to forty yards wide at the mouth, very shallow, and for half a mile up is one continuous rapid. Be-

tween Fort Reliance and Forty Mile river (called Cone Hill river by Schwatka) the Yukon assumes its normal appearance, having fewer islands and being narrowed, averaging four to six hundred yards wide, and the current being more regular. This stretch is forty-six miles long, but was estimated by the traders as forty, from which the Forty Mile river took its name.

"Forty Mile town site is situated on the south side of the Forty Mile river at its junction with the Yukon. The Alaska Commercial company has a station here which was for many years in charge of L. N. McQuestion; there are also several blacksmith shops, restaurants, billiard halls, bakeries, opera-house, and so on. Rather more than half a mile below Forty Mile town site the town of Cudahy was founded on the north side of Forty Mile river in the summer of 1892. It is named after a well-known member of the North American Transportation and Trading company. The company has erected a saw mill and some large warehouses. Fort Constantine was established here immediately upon the arrival of the mounted police detachment in the latter part of July, 1895.

"Forty Mile river joins the main river from the west. Its general course, as far up as the international boundary line, a distance of twenty-three miles, is southwest; after this it runs nearer south. Forty Mile river is 100 to 150 yards wide at the mouth, and the current is generally strong, with many small rapids. Eight miles up is the so-called canyon; it is hardly entitled to that distinctive name, being simply a crooked contraction of the river with steep rocky banks, and on the north side there is plenty of room to walk along the beach. The length of this canyon is about a mile. Above it the river up to the boundary line is generally smooth, with swift cur-

rent and an occasional ripple. The amount of water discharged by this river is considerable; but there is no prospect of navigation, it being so swift and broken by many small rapids.

"From Forty Mile river to the boundary line the Yukon preserves the same general character as between Fort Reliance and Forty Mile: the greatest width being about half a mile and the least about a quarter. Fifteen miles below Forty Mile river a large mass of rock stands on the east bank. This was named by Schwatka 'Roquette Rock,' but it is known to the traders as 'Old Woman Rock;' a similar mass, on the west side of the river, being known as 'Old Man Rock.'

"From Stewart river to the mouth of the Yukon is about 1,650 miles, and the only difficult place in all this distance is the part near the confluence with the Porcupine, which has evidently been a lake in past ages, but is now filled with islands: the current here is swift and the channels generally narrow, rendering navigation difficult."

Approximate distances to Fort Cudahy, compiled by William Ogilvie, land surveyor of the Dominion of Canada:

Via St. Michael.

	Miles.
San Francisco to Dutch Harbor	2,400
Seattle or Victoria to Dutch Harbor	2,000
Dutch Harbor to St. Michael	750
St. Michael to Cudahy	1,600

Via Taiya (Dyea) Pass.

Victoria to Taiya (Dyea)	1,000
Taiya to Cudahy	650

Via Stikine (Stikeen) River.

Victoria to Wrangel	750
Wrangel to Telegraph creek	150
Telegraph creek to Teslin lake	150
Teslin lake to Cudahy	650

Distances from Head of Taiya Inlet.

Head of canoe navigation, Taiya river	5.90
Forks of Taiya river	8.38
Summit of Taiya pass	14.76
Landing at Lake Lindeman	23.06
Foot of Lake Lindeman	27.49
Head of Lake Bennett	28.09
Boundary line B. C. and N. W. T. (Lat. 60°)	38.09
Foot of Lake Bennett	53.85
Foot of Caribou crossing (Lake Nares)	56.44
Foot of Tagish lake	73.25
Head of Marsh lake	78.15
Foot of Marsh lake	97.21
Head of canyon	122.94
Foot of canyon	123.56
Head of White Horse rapids	124.95
Foot of White Horse rapids	125.33
Talikerna river	139.92
Head of Lake LeBarge	153.07
Foot of Lake LeBarge	184.22
Teslintoo river	215.88
Big Salmon river	285.54
Five Finger rapids	344.83
Pelly river	403.29
White river	499.11
Stewart river	508.91
Sixty-Mile creek	530.41
Dawson City	575.70
Fort Reliance	582.20
Forty-Mile river	627.08
Boundary line	667.43

CHAPTER. V.

CAPITAL REQUIRED BY GOLD-SEEKERS.

ANY MEN have been fired with an eager desire to go to the Klondike regions because the gold in that country is found in the "poor man's mine," that is, in placer deposits. Placer mines are called "tenderfoot mines" and "poor man's" mines because they are worked with comparatively inexpensive appliances which can be carried around by the prospector. With a pick, shovel and pan alone the prospector is able to extract the gold from the pay dirt. The stories that have come down from the upper Yukon basin indicate that the mines on the El Dorado, Bonanza and other gold-bearing creeks of the Klondike are, in all respects, "poor men's mine." But although the mines themselves are open to every man who has a pair of strong arms, a pick, a shovel and a pan, something more than determination and a pair of legs is required to get to the mines from any place in the United States. The way is long and transportation charges are heavy.

All sorts of estimates have been made as to the amount of ready cash a man must have to buy his outfit and pay his passage to the Klondike country. Men "who have been there" insist that a gold-seeker is a fool to start out from civilization without enough money in his pocket to give him at least a working capital of $300 when he arrives at the diggings. Others put the figure at $500. The majority of returned Klondikers say that the pros-

pector must figure on at least two years' work in the gold fields, and must make all preparations looking to the possibility of utter failure; that is, he must have enough money, not only to buy his outfit and provide for transportation, but to pay his living expenses in the gold country for at least two years, and have enough money left to buy a "return ticket." There is this to comfort the gold-seeker, however. All authorities agree in the prediction that the men who go north in the spring of 1898 not only will have a much easier road to travel, but will not be faced with the probability of privations and suffering due to a lack of food and clothing in the storehouses of trading companies.

The monopoly held by the two large transportation companies which operate on the Yukon river from St. Michael to the head of navigation has been broken. Independent companies have been formed for the purpose of competing for the business of handling passengers and freight on the Yukon and other navigable rivers of Alaska and the Northwest territory. This means that the cost of transportation per passenger will be reduced, and that the river steamers will carry freight for prospectors and miners, and that a larger stock of provisions and goods of all kinds needed in that country will be carried at all times.

The fare from Seattle to any point on the Yukon river was $200 this year (1897). This included 200 pounds of baggage, meals and berth, but did not include the transportation of anything over 200 pounds per passenger. The company making this rate is in the trading as well as the transportation business, and wanted to sell the gold-seekers their outfits and stocks of provisions from the company's storehouses at Circle City and other places along the Yukon. In a circular issued by this company

the prospector was advised to have at least $500 capital upon arrival at his destination, and to make his plans to stay one year at least. This price of $200 carried the gold-seeker from Seattle to St. Michael and up the Yukon river to Dawson City.

One of the independent companies which is advertised to start into the Yukon district next spring announces that for $600 it will take a man from Seattle or San Francisco to Dawson City or any other mining center in the Yukon district and keep him in food for one year. The $600, however, after the prospector once arrives on the ground, does not include cooking nor shelter after reaching the Yukon. In short, the man who intends to take the all-water route, that is, from San Francisco or Seattle or Victoria, B. C., up the Yukon by way of St. Michael, must be prepared to pay $200 to $250 for transportation of himself and 200 pounds of baggage, and to spend anywhere from $250 to $500 for his outfit and his stock of provisions and yet have at least $300 for a "rainy day" capital. In other words, in order to get to the "poor man's mines" the gold-seeker should have an available capital of from $750 to $1,000. It is believed that $700 is the least amount that a man can start out with, and the amount may run as high up as the pocket-book will stand.

A San Francisco steamship company advertises that it will carry passengers from San Francisco to the Klondike by way of St. Michael and the Yukon river for $300, including 150 pounds of baggage, and will also carry extra supplies not exceeding 1,000 pounds a passenger for 10 cents a pound.

The price of an outfit in Dawson City, Circle City, and Fort Cudahy and Forty Mile is given all the way from $500 to $1,000. This includes a year's supply of food

and clothing and prospecting and mining outfit, and is based on an advance of three times the cost of a like outfit in Seattle. The lowest estimate given on an outfit was $90, in Seattle. This only included enough provisions to get a man to Dawson City by the overland route. The cost of outfits, as made up in Chicago, Seattle, San Francisco and other points in the United States, including clothing, groceries, hardware, armament and camping outfit, ranges from $185 to $275; to this, however, must be added the duty charged by the Canadian authorities, the average of which is nearly 25 per cent, so that 25 per cent should be added to the cost of an outfit. (See chapter on gold-seekers' outfit.)

The overland, or the Chilkoot pass, route by way of Dyea is the one that was taken by the greatest number of gold-seekers this year, because they were able to carry a large amount of provisions (which they were not permitted to take with them on the Yukon river route), and because they were told that by taking this overland route they could get to Dawson City inside of 30 days. The steamer passage from Seattle for Juneau and Dyea cost, to Juneau $25 per cabin and $15 for steerage; to Dyea $40 cabin, $25 steerage. The fare included berth and meals and free baggage to the amount of 150 pounds. Excess baggage was carried for 10 cents a pound, and freight for $10 a ton.

This was the cheapest of the transportation charges from Seattle to Dyea made during the rush. The demand made on the steamship companies by excited gold-seekers sent tickets way above par, and premiums of $100 were paid. None of the steamship companies will give an advance notice of their rates of fare for next spring, but as every boat that would sail or float was pressed into service this year, it is probable that many good boats will

be put into commission next spring, and competition will hold rates level. It is estimated that nearly 6,000 people went from the Pacific seaports to Dyea during the rush, and the boats were overcrowded. This naturally brought an increase in all charges.

It is announced that some of the steamship companies are making arrangements to transport baggage and outfits over the Chilkoot pass to the head of Lake Lindeman. If this is done the cost of portage over the pass to the head of navigation of the Yukon will be much less next spring than it was this year. All sorts of prices were demanded by the Indians and packers, for they had the gold-seekers at their mercy.

Under date of July 30, William J. Jones, a special correspondent of the CHICAGO RECORD, writing from Juneau, said that the rate over the Dyea route, under normal conditions, was $17 a 100 pounds, but that it was certain to be advanced to 30 or 40 cents a pound in a week or two, and that it would be impossible for the Indians and packers to take care of the rush. This prediction was verified before ten days by the reports that came back from Dyea. Several thousand gold-seekers were held at Dyea waiting for an opportunity to cross the pass with their outfits and stocks of provisions, and portage prices had gone up almost "out of sight."

If this rush is repeated next spring the gold-seekers must be prepared to go down into their pockets to pay big premiums for carrying their outfits over the several passes to Lake Lindeman. Undoubtedly pack horses and mules will be substituted in a large measure for Indians next year, and numerous plans are on foot to improve the trail. The cost of the journey from Lake Lindeman to the gold diggings is generally regarded as an unknown quantity. Many men will carry and haul their provisions

themselves, building rafts and boats to go down the river. Others, better provided with ready cash, will buy boats at Lake Lindeman or will take boats with them from Seattle or San Francisco, and will employ Indians to manage the boats and act as guides, cooks and general roustabouts.

It is claimed that miners can go from Chicago to the Klondike by way of the "back door" route, that is, up the Athabasca and Mackenzie rivers to the Peel river and then across the divide into the Yukon country, for $150. A. H. H. Heming, of Montreal, the artist who accompanied Caspar Whitney in his trip to the "Barren Land," says, on the authority of the Hudson's Bay company officials, that all that is needed for the "back door" route are a good constitution, some experience in boating and camping, and about $150. Mr. Heming advises gold-seekers to travel in parties of three, and to purchase a good canoe for about $35 in Chicago or St. Paul. The freight on the canoe to Edmonton, the end of the railroad route, will be $23; cost of food at Edmonton for three men for two months, consisting of pork, flour, tea and baking powder, $35; total for three men from Chicago to Fort McPherson, provided they travel second-class on the Canadian Pacific railroad, will be $152.45 a man.

Thus if three men "chip in" $200 each they would have a margin of over $140 for purchasing tools and for transportation from Fort McPherson to the Klondike. Parties should consist of three men each, as this is the crew of a canoe on the Mackenzie river. It will take 600 pounds of food to carry three men over the route, and passengers on the Canadian Pacific railroad are entitled to carry 600 pounds of baggage. The tourist sleeper from St. Paul to Calgary, the point on the Canadian Pacific where the spur leads to Edmonton, will cost $4.

Although any local ticket agent can give the railroad rates to the Pacific coast points, the following list is given as a suggestion for the purpose of including everything in the estimate of cost to go from "home" to the Klondike country. The railroad rates from principal points are as follows:

New England points, practically the same as Boston rates (get difference between Boston and New England points from local agents); Boston to San Francisco—first-class, $92; second-class, $79; sleepers, $20.50; tourist car, $8; meals in dining car or at stations according to route; baggage allowed, 150 pounds; excess baggage, $11 per 100 pounds; time from Boston to San Francisco, 5 days and nights.

Boston to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $83.50; second-class, $69.75; sleeper, $21; tourist car, $7.50; meals in dining car or at stations according to route; baggage allowed, 150 pounds; excess baggage, $10.50 to $11.50 per 100 pounds.

Note: The above rates are over the standard or first class lines to Chicago. If a differential or second-class road is taken the first-class fare will be $3 less than given above, and second-class fare $2.

New York to San Francisco—first-class, $82.50; second-class, $72.50; sleeper, $25.50; tourist car, $11. Meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $11 per 100 pounds; time from New York to San Francisco, 5 days and 5 nights.

New York to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $81.50; second-class, $69.75; sleeper, $20.50; tourist car, $10; meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $10.50 to $11 per 100 pounds.

Time from New York to Seattle and Portland, 99 hours; Vancouver, 105 hours; Victoria, 111 hours.

Note: Above fares are on first-class lines to Chicago. If second-class road is taken, first-class fare will be $3 less and second-class fare $2 less than the above rates.

Buffalo to San Francisco—first-class, $76; second-class, $62.50; sleeper, $18; tourist car, $8; meals in baggage car or in stations, according to route; baggage allowed, 150 pounds; excess baggage, $10.35 per 100 pounds. Time from Buffalo to San Francisco, 4½ days and 4 nights.

Buffalo to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $75; second-class, $62; sleeper, $18; tourist car, $8; meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $10.35 per 100 pounds. Time from Buffalo to Seattle, Portland, Vancouver and Victoria, B. C., from 5 to 6 days and nights.

Chicago to San Francisco—first-class, $62.50, second-class, $52.50; sleeper, $20.50; tourist sleeper, $8; meals in dining car or at stations, according to route from $1 to 50 cents each; baggage allowed, 150 pounds; excess baggage, $8.70 per 100 pounds. Time from Chicago to San Francisco, 4 days and 4 nights.

Chicago to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $61.50; second-class, $51.50; sleeper, $15.50; tourist, $7; meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $8.60 per 100 pounds. Time from Chicago to Seattle and Portland, 85 hours; Vancouver, 91 hours; Victoria, 97 hours.

Omaha to San Francisco—first-class, $50; second-class, $40; sleeper, $13; tourist car, $5; meals in dining car or at stations, according to route; baggage allowed,

150 pounds; excess baggage, $7.20 per 100 pounds. Time from Omaha to San Francisco, 4 days and 3 nights.

Omaha to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $50; second-class, $40; sleeper, $13; tourist car, $5; meals in dining car or at stations, according to route, average 75 cents each; baggage allowed, 150 pounds; excess baggage, $7.20 per 100 pounds. Time from Omaha to Seattle and Portland, 65 hours; Vancouver, 71 hours; Victoria, 77 hours.

Denver to San Francisco—first-class. $45; second-class, $35; sleeper, $11; tourist car, $4; meals in dining car or at stations, according to routes, average 75 cents each; baggage allowed, 150 pounds; excess baggage, $6.60 per 100 pounds. Time from Denver to San Francisco, 3 days and 2 nights.

Denver to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $45; second-class, $35; sleeper, $11; tourist car, $4; meals in dining car or at stations, according to route, average 75 cents each; baggage allowed, 150 pounds; excess baggage, $6.60 per 100 pounds. Time from Denver to Seattle and Portland, 64 hours; Vancouver, 70 hours; Victoria, 76 hours.

Minneapolis and St. Paul to San Francisco—first-class, $57.90; second-class, $47.90; sleeper, $13.50; tourist car, $5; meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $7.20 per 100 pounds. Time from St. Paul and Minneapolis to San Francisco, 4 days and 3 nights.

Minneapolis and St. Paul to Seattle, Portland, Vancouver and Victoria, B. C.—first-class, $50; second-class, $40; sleeper, $13.50; tourist car, $5; meals in dining car or at stations, according to route; baggage allowed, 150 pounds; excess baggage, $7.20 per hundred pounds. Time from Minneapolis and St. Paul to Seattle and Port-

land, 63 hours; Vancouver, 69 hours; Victoria, 75 hours.

New Orleans to San Francisco—first-class, $57.50; second-class, $47.50; sleeper, $13; tourist sleeper, $5; meals at stations, 75 cents each; excess baggage, $8.10 per 100 pounds. Time from New Orleans to San Francisco, 4 days and 4 nights.

New Orleans to Seattle and Portland—first-class, $70.30; second-class, $52.50; sleeper, $18; tourist sleeper, $6.50; meals in station, 75 cents; excess baggage, $10.30 per hundred pounds. Time, 5 days and 5 nights. The fare from New Orleans to Victoria, B. C.—first-class, $74.80; second-class, $55.50; excess baggage, $10.85 per 100 pounds; sleepers and so forth, same as to Seattle.

For purposes of getting up an estimate of the expense of railroad fare, the following rates are added:

To San Francisco from Baltimore and Washington—first-class, $78.50; second-class, $55; from Louisville, first-class, $64.10; second-class, $54.10; from Memphis, first-class, $57.50; second-class, $47.50; from Nashville, first-class, $60.35; second-class, $50.35; from Atlanta, first-class, $63.35; second-class, $53.35; from Charleston, first-class, $73.75; second-class, $63.75; from Philadelphia, first-class, $90.25; no second-class; from Pittsburg, first-class, $73.25; second-class, $61; from Cincinnati, first-class, $66.50; second-class, $56.50.

To Seattle and Portland from Washington and Baltimore—first-class, $78.50; second-class, $65; from Louisville, first-class, $65.50; second-class, $55.50; from Memphis, first-class, $62; second-class, $52; from Nashville, first-class, $67; second-class, $54; from Atlanta, first-class, $74.50; second-class, $60; from Charleston, first-class, $77.50; second-class, $67.50; from Philadelphia, first-class, $79.75; second-class, $67.25; from Pittsburg,

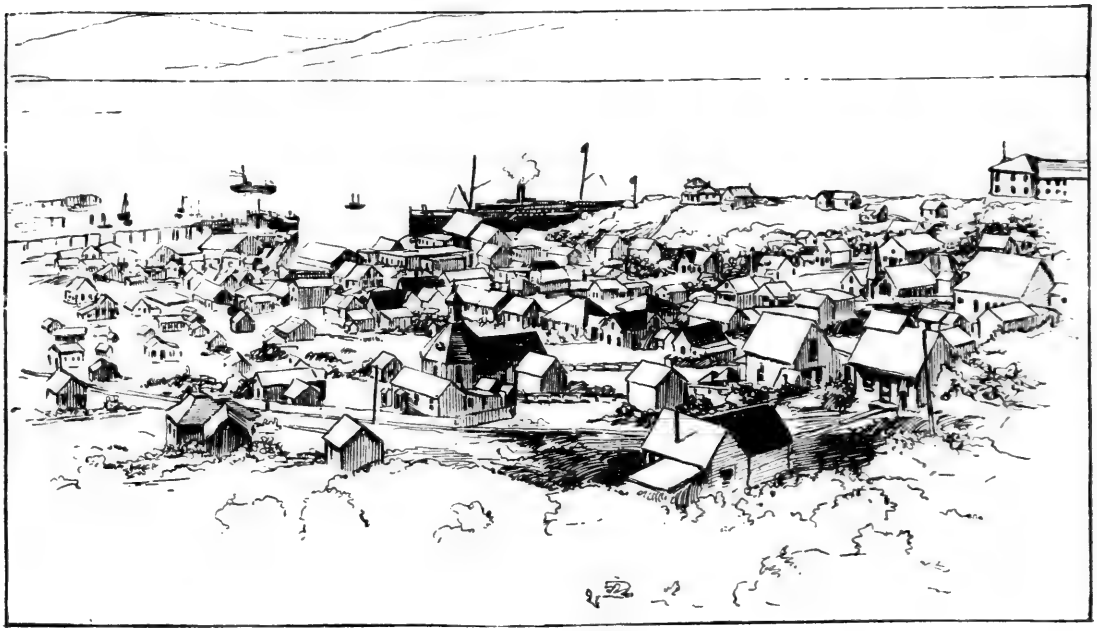
first-class, $73.25; second-class, $61; from Cincinnati, first-class, $66.50; second-class, $56.50.

Passengers from Baltimore and Washington cannot get tourists' sleepers until they reach Chicago or St. Louis.

By the "back door" route gold-seekers will leave Chicago and go to St. Paul on any of the Chicago and St. Paul lines, and at St. Paul take the Canadian Pacific for Edmonton; first-class fare from Chicago to Edmonton, $63.75; second-class, $59.45. Tourist sleeper from St. Paul, $4.

No one should venture to set out for the Alaska diggings without a "pardner." The word must not be confounded with partner. Partner has a smart, business-like sound. It is precisely defined by law, and though it may by courtesy involve something of special favor, its equities at last rest upon the decisions of courts without regard to sentiment. But a "pardner" glories in sentiment. He expects to give his mate all that the law requires and call that only a beginning. Men may be chums in easy, prosperous times, says the St. Louis Globe-Democrat, but it is not until they pass together through a succession of dangers and hardships that they can become "pardners." Congeniality and implicit confidence are at the base of a "pardnership;" and for better or for worse the two men stand as one under all vicissitudes, doubling each other's joys and dividing sorrows and failures. If one falls by the way the other gives him more than the devotion of a brother.

Gold mining eventually is a business conducted by large capital, but placer diggings afford an opening to any one who can stake and work a claim. The two "pardners" begin operations on the ground floor, share their discoveries, tent together, and cook for each other. Their



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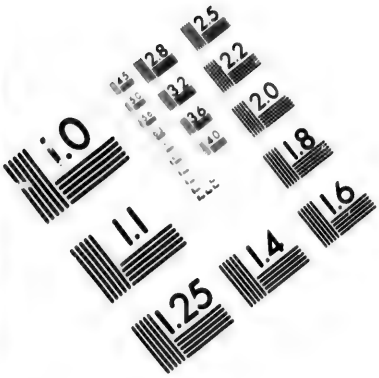
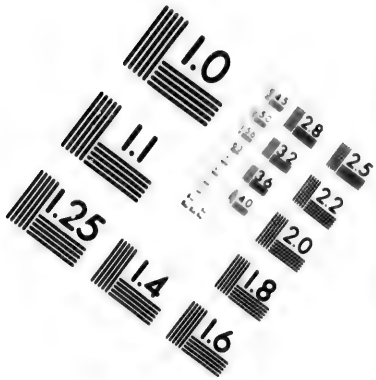
qualities and traits are complimentary. "Pardners" are closer than messmates in the army or navy. The soldier or sailor is under the care of a bountiful provider. His food, clothes and shelter are furnished by the government, and his comings and goings are regulated by orders. "Pardners," on the other hand, must skirmish together from the start for subsistence and plans of operation. They fight the battle of life for two under hazardous conditions, far from families and friends, satisfied, for the time being, with bare necessities. Under such a test "pardners" are forged as steel is forged.

The literature of California is full of the "pardner" atmosphere. Bret Harte's tales would be tame without it. But "pardners" in that state, except as gray-beard survivors, are scarce now. They will be revived in Alaska, and experience far greater trials than they ever knew in the first Pacific commonwealth. Freezing and starvation were unknown in California. It is not likely that the mining camps in Alaska will permit any one to starve, but they have a regulation for shipping those lacking means or resources out of the country. In a community of "pardners" a high sense of general humanity will prevail, but there must be prudence as to feeding drones during the long season when the lines of supply are interrupted. Alaska will furnish a great growth of friendship, with the "pardner" as its top flower. No man can utterly fail there who has a good "pardner," and is one. Among the glaciers and the frozen moss, where a blossom has never opened to the light, the lines of Holmes will take on a new beauty, teaching that "friendship is the breathing rose that sweets in every fold."





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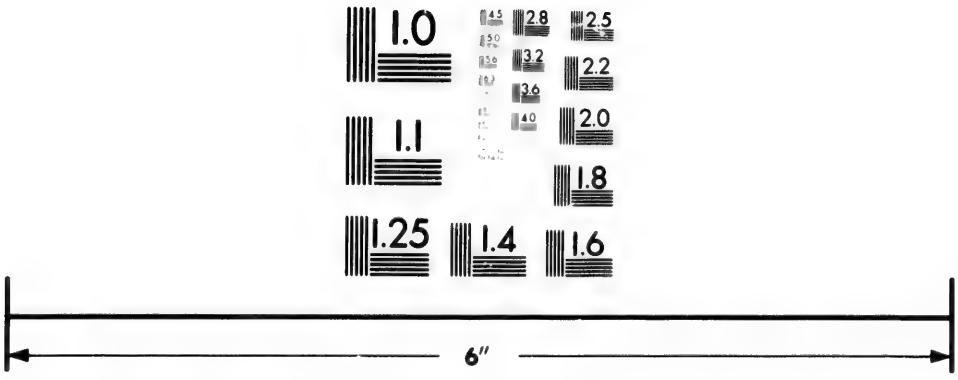

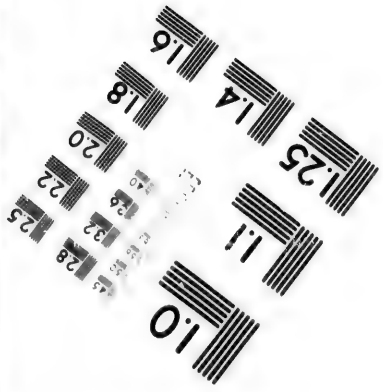

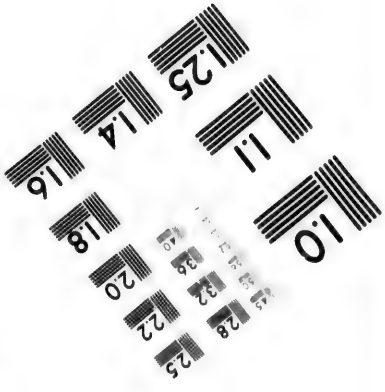

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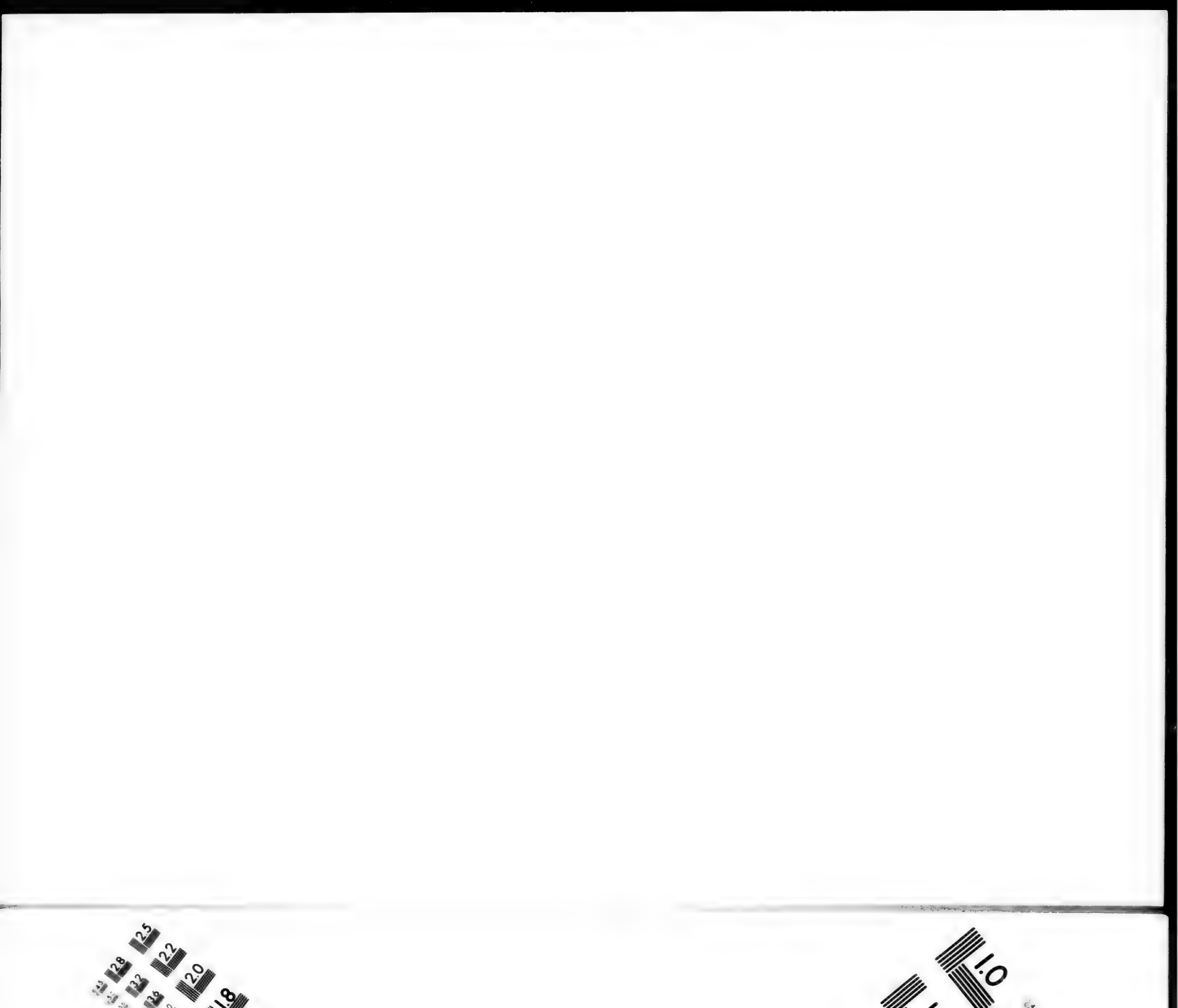


CHAPTER VI.

HINTS FOR PROSPECTORS AND MINERS.

KLONDIKE GOLD is found all the way through a frozen deposit of sand, gravel and earth from twenty to twenty-five feet thick, resting on bed rock. This bed rock is said to be shale; depth unknown. A claim on El Dorado creek, a tributary of the Klondike, which paid its owner very handsomely, is 80 feet from rimrock to rimrock, with a frontage of 500 feet on the creek. After going through the soil and muck on the surface of the ground, a bed of gravel mixed with sand sixteen feet thick is found. This rests upon a four-foot bed of fine and coarse gravel, which in turn rests on a stratum of fine gravel a foot and a half thick which tops a stratum, one and one-half feet of fine black sand.

This black sand rests on bed rock, and is the "pay dirt" of the Klondike. The 16-foot bed of gravel mixed with sand paid the miner from 50 cents to $2 a pan; the 4-foot bed of coarse gravel paid him from $2 to $5 a pan. The stratum of fine gravel beneath paid $1.25 a pan, and pay dirt yielded all the way from $5 to $50 a ton. The ground above bed rock is frozen, making it necessary to resort to "firing" to soften the gravel and sand so that it can be lifted to the top. This is the character of the placer mines of the Klondike.

But it is reported that every paying claim on the Klon-

dike is taken. This means that many men who intend to go to the gold country in the far north in the spring of 1898 must "prospect" other places. The following pages are intended as a simple guide to "tenderfeet," or as they are called in the Klondike country "chechacos." Experienced prospectors and miners have little use for guides of any kind, but there are thousands of men who will see gold in the dirt for the first time in their lives when they see it in Alaska or the Northwest territories.

In prospecting a country for mineral, two men can do better than one. A "pardner" is a great help to an experienced miner even though the "pardner" himself doesn't know the difference between gold dust and iron pyrites—the "fool's gold." To a "tenderfoot," a "pardner" is absolutely necessary, even though the "pardner" himself is another "tenderfoot," for two men are better than one under almost any combination of circumstances.

Gold found in placer mines is free or native gold brought down from the "mother lode" by the action of running water or by the glaciers, which ages ago passed over the land. For this reason, in prospecting a country for mineral wealth, the sands and rocks of river beds, in dry creeks and gulches, and at the bottom of valleys should be searched and examined systematically and carefully.

The prospector should observe the characteristics of loose rocks, found in ravines and gulches; in eddies or dry water holes where heavy matter is left during freshets, which are of frequent occurrence in a mountainous country; for holes, channels and fissures in solid rock, over which a stream runs or has run.

If the bed of a river flowing through an open country, yields fine gold dust, it will probably yield larger dust or grains nearer the mountains or hills from which it flows;

if the bed of this river yields grains of gold, the tributaries near the source probably will yield nuggets, for the heavy particles will sink and be caught in the beds of streams and rivers first. Sometimes the richest deposits are found where the current has been broken by a change of descent or direction.

In a stream which is known to be gold bearing the prospector will do well to take notice of abrupt turns. If one side of the stream is a cliff and the other a gentle slope the latter may be found to be rich in gold deposits. Sometimes where there are several bends with slopes opposite cliffs, the slopes will likely give up gold.

The end of a mountain chain offers a likely site for alluvial diggings.

When alluvial ground is made up with rather loose gravel, mixed with boulders or lumps of rock, the gold, with other heavy substances, will be found underneath the bulk of the coarse deposits, either next to or near bed rock, or mixed with clay. Thus it is wise to examine the earthy matter just over the bed rock. If clay is likely to contain gold it should be washed carefully.

If the flow of water in a stream hinders digging operation, "back trenches" should be cut so that the water may flow through them, thus diverting the stream from the site of operation. This will lay the bed bare and the prospectors can easily remove large rocks or boulders looking for nuggets and wash the finer gravel with running water.

To detect free or native gold in rock, sand or gravel, the samples should be examined by means of a magnifying glass if the eye is insufficient. The particles of gold, if present, in the free state generally will be distinct enough whether wet or dry to be distinguished from discolored mica, iron or copper pyrites.

In whatever direction it is looked at gold presents the same color, and this is a guiding test to the prospector.

A gold grain picked out from a rock or selected from sand or gravel can be flattened out by a hammer, and can be cut in slices.

Those materials most likely to be mistaken for gold are reduced to powder when pounded.

Iron pyrites is too hard to be cut with a knife; copper pyrites when pounded makes a greenish powder.

Pyrites ore when heated, smells of sulphur.

Mica when discolored, is frequently mistaken for gold when discovered by the "tenderfoot;" but it is not easily cut and has a colorless streak and can thus be easily distinguished from gold.

It is much easier to distinguish pure or metallic gold in alluvial deposits than it is to certainly recognize it in rock. Gold frequently occurs as a fine powder, which even the magnifying glass will be unable to distinguish, and also the grains, because of the presence of sulphur or arsenic, may be coated with a film which makes them unrecognizable to the eye; even making the gold incapable of amalgamation with mercury until the material has been roasted or put through some process. The prospector in the Yukon district, however, will have little trouble in recognizing gold when he sees it, for it appears that the gold is large grained and easily distinguished.

In addition to his "grub pack," the prospector must provide himself with the few appliances necessary to wash out the gold. He should have a shovel, hammer, pick and pan or horn spoon. The pan and horn spoon, and method of using them, are described hereafter. The hammer is used when prospecting for mineral veins or deposits other than alluvial.

The presence of free gold in alluvial deposits, that is

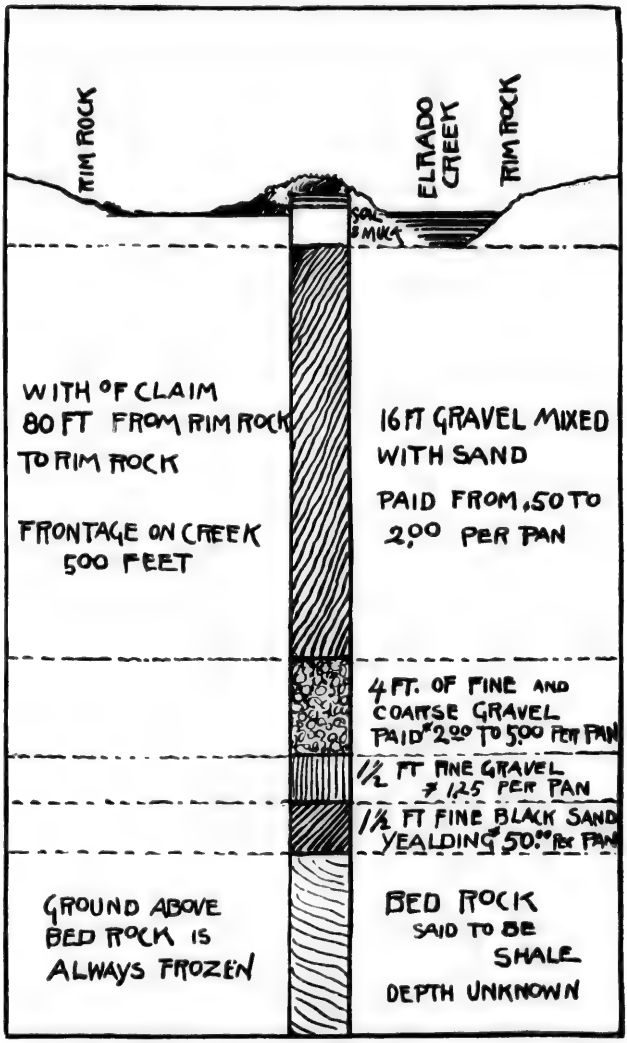


DIAGRAM SHOWING SECTION OF PLACER CLAIM 14, ON EL DORADO CREEK, KLONDIKE DISTRICT.

in matter washed or carried down from higher ground, does not necessarily mean that auriferous lodes (gold bearing rock or quartz) are in the immediate vicinity, but the chances are in favor of lodes being found on elevations of land near the alluvial deposit.

It would be well, then, for the prospector who has found a "placer mine," to examine neighboring elevations.

In searching for mineral veins, the general geological features of the country should be studied. If any roads are cut through, it would be well to study the character of the exposed sections. Sides of valleys, landslides, cliffs and sections cut through by water afford means to determine the character of the stratification.

If the prospector finds stones or gravel in a valley which he believes are "likely" to go with gold, he should follow up the valley, gulch or river bed until he no longer finds such stones. Then he should search the hill sides for the mother lode.

Common sense is a good guide for a prospector, and when common sense suggests that "drifts" would form naturally, he may come across "out crops" in the steep sides of gulleys and on ridges.

An examination of the loose or "float" rocks on the sides of a hill or elevation often will enable the prospector to make a good "guess" of the nature of an underground lode. The prospector then, in climbing hills, should look "all ways" for signs of veins, constantly keeping an outlook for the kind of rock which is known to form the matrix (mineral associated with ore in a lode) of a mineral vein.

The matrices chiefly are quartz, fluor spar and calc spar; chiefly quartz.

Quartz, at or near the surface of a lode, often is a

stained brown, yellow, purple, or other color, due to decomposed iron or copper pyrites, and frequently is honey-combed. Quartz scratches glass, but is not scratched by a file or knife blade. It is nearly pure silica.

Fluor spar is purple, at times yellow, white, green or blue. It is soft. When heated in a dark place it gives out a phosphorescent glow.

Calc spar is transparent or translucent. It effervesces when acted on by an acid.

As quartz is nearly always the matrix of mineral veins, the prospector should look for it.

Gold bearing quartz which has broken away from the lode, is generally honey-combed, and as gold withstands weather, the yellow specks may be seen in the cells once filled with iron or copper pyrites, which have been "washed out" in the course of years of exposure to the elements, leaving nothing behind but stains.

One of the best "surface" indications of a gold bearing lode, is honey-combed rock, brown with iron oxide.

Having traced the brown stained, honey-combed rock up the hill to the rock from which it was broken, the prospector should dig a trench at right angles, if possible, to the lode, that he may examine its character; the nature of the vein; the non-metallic rock material in the lode; to find the upper or hanging wall, and the lower or foot-wall, and to ascertain the direction or "strike" of the lode.

He also should sink a "prospecting" shaft a few feet below the bottom of his trench, to be certain of the inclination of the lode.

The probable direction of the lode ascertained, the prospector can sink other shafts higher up or lower down

on the hill, or the other side of the valley, to test the continuity of the vein.

If it is possible to take specimens of the ore to an assay office, it is best to do so, as much labor might be wasted on low grade ore which, to the eye, looks promising.

But in out-of-the-way places, it is difficult to find assayers. It is possible, however, for the prospector to find, with approximate certainty, the value of his find if the metal in the ore is free gold.

Hammer a quantity of the ore with water, until the ore is reduced to powder, add mercury to the powder; about one ounce of mercury to eight pounds of ore. If possible add a little cyanide of potassium. Grind the whole mass until the gold and mercury form an amalgam. Then pour in some water, and when the amalgam has settled to the bottom, pour off the lighter material, collect the amalgam, and squeeze it through a buckskin or canvas bag. Place the mass left in the bag on a shovel and hold the shovel over a fire. The heat will drive the mercury out, leaving the gold behind; then the prospector can "guess" the value of his find.

Having found his gold mine, placer or lode, and being satisfied that it is worth holding and working, the prospector should "locate" and "file" his claim.

If the "find" is on Canadian soil, he must proceed according to the rules and regulations laid down by the Canadian authorities. (See Canadian mining laws in this book.)

If the placer or lode is in Alaska, the regulations of the United States land office department must be observed. These regulations are based on the United States "mineral laws." (See United States mining laws in this book.) The process is as follows:

A correct survey of the claim must be made under

authority of the survey-general of the state or territory in which the claim lies.

The survey must show with accuracy the exterior boundaries of the claim.

Boundaries must be distinctly marked by monuments on the ground.

Four plats and one copy of the original field notes, in each case, will be prepared by the surveyor-general; one plat and the original field notes, to be retained in the office of the surveyor-general; one copy of the plat to be given the claimant for posting upon the claim, one plat and a copy of the field notes to be given the claimant for filing with the proper register, to be finally transmitted by that officer, with other papers in the case, to this office, and one plat to be sent by the surveyor-general to the register of the proper land district to be retained on his files for future reference.

The claimant must post a copy of the plat of the survey in a conspicuous place upon the claim, together with notice of his intention to apply for a patent.

This notice must give the date of posting, the name of the claimant, the name of the claim, mine, or lode; the mining district and county; whether the location is of record, and, if so, where the record may be found; the number of feet claimed along the vein, and the presumed direction thereof; the number of feet claimed on the lode in each direction from the point of discovery, or other well-defined place on the claim; the name or names of adjoining claimants on the same or other lodes; or, if none adjoin, the names of the nearest claims, etc.

After posting the plat and notice upon the premises, the claimant must file with the proper register and receiver a copy of such plat, and the field notes of survey of the claim, accompanied by the affidavit of at least two

credible witnesses, that such plat and notice are posted conspicuously upon the claim, giving the date and place of such posting; a copy of the notice so posted to be attached to, and form a part of the affidavit.

Accompanying the field notes so filed must be the sworn statement of the claimant, that he has the possessory right to the premises therein described, in virtue of a compliance by himself (and by his grantors, if he claims by purchase) with the mining rules, regulations, and customs of the mining district, state or territory in which the claim lies, and with the mining laws of congress; such sworn statement to narrate briefly, but as clearly as possible, the facts constituting such compliance, the origin of his possession, and the basis of his claim to a patent.

This affidavit should be supported by appropriate evidence from the mining recorder's office as to his possessory right, as follows, viz.: Where he claims to be the locator, or a locator in company with others who have since conveyed their interest in the location to him, a full, true, and correct copy of such location should be furnished, as the same appears upon the mining records; such copy to be attested by the seal of the recorder, or if he has no seal, then he should make oath to the same being correct, as shown by his records. Where the applicant claims only as a purchaser for valuable consideration, a copy of the location record must be filed under seal or upon oath as aforesaid, with an abstract of title from the proper recorder, under seal or oath as aforesaid, brought down as near as practicable to date of filing the application, tracing the right of possession by a continuous chain of conveyances from the original locators to the applicant, also certifying that no conveyances affecting the title to the claim in question appear of record in his

office other than those set forth in the accompanying abstract.

In the event of the mining records in any case having been destroyed by fire or otherwise lost, affidavit of the fact should be made, and secondary evidence of possessory title will be received, which may consist of the affidavit of the claimant, supported by those of any other parties cognizant of the facts relative to his location, occupancy, possession, improvement, etc.; and in such case of lost records, any deeds, certificates of location or purchase, or other evidence which may be in the claimant's possession and tend to establish his claim, should be filed.

Upon the receipt of these papers the register will, at the expense of the claimant (who must furnish the agreement of the publisher to hold applicant for patent alone responsible for charges of publication), publish a notice of such application for the period of sixty days in a newspaper published nearest to the claim, and will post a copy of such notice in his office for the same period. When a notice is published in a weekly newspaper ten consecutive insertions are necessary; when in a daily newspaper the notice must appear in each issue for sixty-one consecutive issues, the first day of issue being excluded in estimating the period of sixty days.

The notices so published and posted must be as full and complete as possible, and embrace all the data given in the notice posted upon the claim.

Too much care cannot be exercised in the preparation of these notices, inasmuch as upon their accuracy and completeness will depend, in a great measure, the regularity and validity of the whole proceeding.

The claimant, either at the time of filing these papers with the register or at any time during the sixty days' publication, is required to file a certificate of the surveyor-

general that not less than $500 worth of labor has been expended or improvements made upon the claim by the applicant or his grantors; that the plat filed by the claimant is correct; that the field notes of the survey, as filed, furnish such an accurate description of the claim as will, if incorporated into a patent, serve to fully identify the premises, and that such reference is made therein to natural objects or permanent monuments as will perpetuate and fix the *locus* thereof.

After the sixty days' period of newspaper publication has expired, the claimant will furnish from the office of publication a sworn statement that the notice was published for the statutory period, giving the first and last day of such publication, and his own affidavit showing that the plat and notice aforesaid remained conspicuously posted upon the claim sought to be patented during said sixty days' publication, giving the dates.

Upon the filing of this affidavit the register will, if no adverse claim was filed in his office during the period of publication, permit the claimant to pay for the land according to the area given in the plat and field notes of survey aforesaid, at the rate of $5 for each acre, and $5 for each fractional part of an acre, the receiver issuing the usual duplicate receipt therefor. The claimant will also make a sworn statement of all charges and fees paid by him for publication and surveys, together with all fees and money paid the register and receiver of the land office; after which the whole matter will be forwarded to the commissioner of the general land office and a patent issued thereon if found regular.

The gold digger's "pan" resembles a frying pan minus the handle. It is generally circular in form, from 10 to 14 inches in diameter at the bottom, flaring out at the top to a diameter three or four inches wider. The sides are

about five inches deep. The pans are made of copper, pressed steel, sheet iron or stout tin-plate, preferably pressed steel or copper.

In using the pans a quantity of the dirt to be washed, say two shovelfuls, is placed in the pan. The pan should not be filled more than two-thirds of its capacity. The pan with its contents is then immersed in water either in a hole or a stream of such a depth that the miner can easily reach the pan with his hand while it rests on the bottom. The mass in the pan is stirred up with both hands so that every particle of it may become thoroughly mixed with the water and disintegrated.

When the dirt has become thoroughly soaked and softened by the water so that it is a thin pasty mass, the pan is taken in both hands, one on either side, and a little inside of its greatest diameter, that is to say about half way up from the bottom to the top. Then without taking it from the water it is held in the hand not quite level, but tipped somewhat away from the person.

When in this position it is shaken so as to allow the water to disengage all the light earthy particles and carry them away. When this has been done there will be left in the pan gold dust, gold nuggets, heavy sand, lumps of clay and gravel stone. The gravel stones generally accumulate on the surface and can be picked off by hand and thrown aside. The lumps of clay should be crumbled and reduced by rubbing and "mashing," so as to be carried off by the water the next time the pan is placed in the water.

This operation, simple as it appears, really requires considerable skill, which only can come by practice. A neat turn of the wrist, and a certain oscillating motion so as to give somewhat of a whirlpool effect to the water in the pan are required to cause the muddy matter to escape

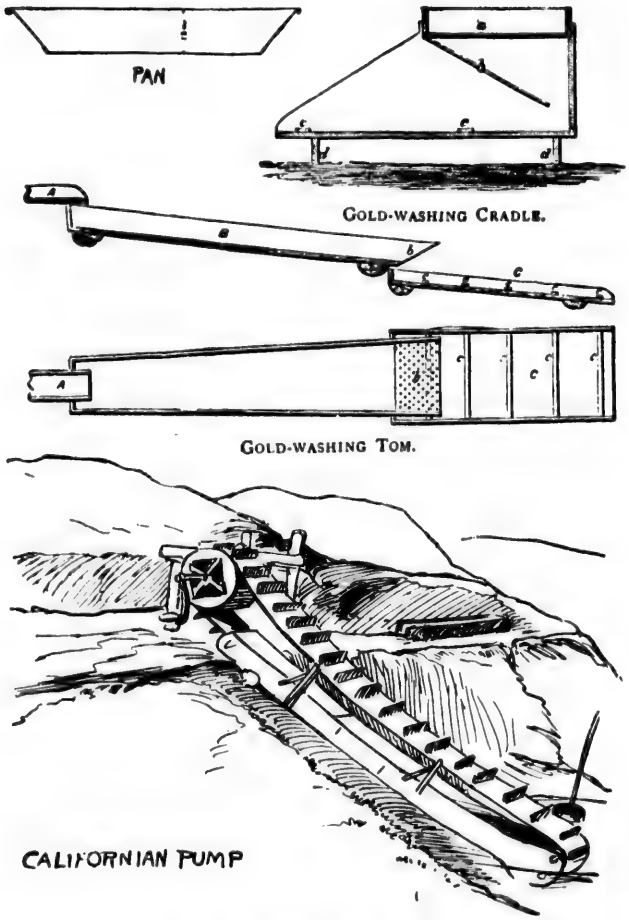
in driblets over the depressed edge of the pan without sending the lighter portions of the gold after them. Frequently the prospector washes out his gold by pouring in water on top of the dirt in his pan, and then shaking it so that the muddy material drips down on to the ground. But old prospectors say that the best results can be obtained by panning under water.

At last nothing remains in the pan but the gold dust, with usually some heavy black sand and a little earthy matter. A careful washing in plenty of clean water will remove the earthy matter completely; but the heavy iron sand cannot be got rid of without the use of a magnet, mercury or blowing.

Few prospectors, however, carry magnets around with them. If the gold dust is very fine and mercury is obtainable, it is a good plan to put a couple of pounds of mercury in a bucket of water, and pour in the mixed gold dust and black sand. The gold will amagamate with the mercury, and can be secured afterwards by squeezing the amalgam through buckskin.

A process which proved very effective is heating the gold and sand on a shovel until the mass is perfectly dry. The sand then is blown away from the gold, and by carefully regulating the force of the blast, either from the breath of the operator or from a small pair of bellows, all of the sand can be blown away, leaving the gold behind.

The horn-spoon is a very simple contrivance used in some places by prospectors instead of a pan. It is made by cutting a piece obliquely out of a large ox horn, so as to give a length of from 8 to 10 inches, with an opening about 2 inches across. The horn is then scraped down to a suitable thickness. In selecting the horn for this purpose it is best to use one that is black at one end, as the gold can be seen more readily against a black surface.



MINER'S PAN, CRADLE, LONG TOM, AND PUMP.

The horn-spoon is a most useful contrivance, for it is light and durable and will not take on grease, which would prevent perfect contact of the water on its surface.

The pan is used where the water supply is insufficient for a cradle. This apparatus is so called because it bears in its outward form a resemblance to an ordinary nursery cradle. It rests on a pair of rockers, and is made to oscillate just as a cradle is rocked. The cradle generally is about 40 inches long, 20 inches wide and the back end rises to the height of 15 inches to 2 feet. The sideboards of the cradle slope down from the height of the back board to about a couple of inches at the mouth.

A movable riddle, or hopper, 20 inches square and 6 inches deep, with a bottom of sheet iron perforated closely with holes one-half inch in diameter, fits neatly and snugly in the top of the cradle. Below the grating an apron made of canvas, duck, a piece of blanket, or some other suitable material, depending upon the material which the prospector has at hand, is stretched on a frame work. The apron or curtain slopes down from the mouth of the cradle towards the bottom of the back board, and rests on fillets nailed on the sideboards.

On the bottom of the cradle 2 pieces of wood are nailed from one side to the other, called riffle-bars, each about three-quarters of an inch high. One riffle-bar is nailed about the middle of the cradle and the other near the outer edge. The whole apparatus stands on rockers, which are cut in a crescent shape, so that the cradle will rock from side to side.

In practice the pay dirt is thrown into the riddle. If the miner is working alone he pours water over the dirt with one hand and rocks his apparatus with the other. Generally, however, miners work in pairs; one pours and the other rocks. The rocking stirs up the pay dirt in the

riddle and the disintegrated mass drops through the holes at the bottom of the riddle, and falling on the apron, is carried to the back end of the cradle and thence along the floor, the water carrying it over the riffle-bars and out of the mouth.

The cradle is placed so that the hopper end is about 2½ inches higher than the mouth end. Almost all pay dirt contains gravel and stone of various sizes. Those which are small enough to pass through the holes in the riddle will drop through. The larger ones, which are retained in the riddle, must be picked out by hand and thrown aside, without, however, stopping the rocking of the cradle. It is a good thing to leave the small gravel which has dropped through, to remain on the floor of the cradle, because they will help the process of breaking up the earthy matter found in the gravel. When the hopper has become filled with stones, and all washed clean, they are tipped out and carefully examined for any nuggets of gold that may be mixed up with them. A certain proportion of very fine gold dust will be caught and held by the hairs and fibers of the cloth in the apron, and larger particles of gold will collect behind the riffle-bars on the bed of the cradle.

Two or three times a day, depending of course upon the nature and richness of the pay dirt, the cradle must be cleaned up. The hopper is taken out so that the apron can be withdrawn. The apron is then washed in a bucket or some other receptacle containing clean water. This will dislodge the gold dust held in the fiber or hair of the apron, and it can be recovered from the bottom of the vessel. The gold and other material which has been caught by the riffle-bars are scraped out with an iron spoon.

The scrapings are put in a pan, and the gold then is

panned out. As water weighs much more than the pay dirt to the bucket, the pay dirt generally is brought to the place where the water is, where it is not possible to let the water flow to the pay dirt by gravity. The cradle should be set far enough back from the source of the water supply so as to provide sufficient fall and outlet for the "pailings." A little pit or well sometimes is dug to serve as a reservoir near at hand for the miner to ladle out his water. If it is possible, water should be conveyed to the hopper through a trough, made by two boards nailed together "V" shaped. One man working alone can wash from 1 to 3 cubic yards of pay dirt a day, depending upon the clayey nature of the dirt. It is better, however, for two men to work together, as they can do more than twice the work of one man.

Cradling is neither economical nor expeditious. Much fine gold is lost by its use, but it is cheap, requires little water and is portable. It is not advisable to use mercury in the cradle. The "long tom" is an improvement on the cradle. It consists of two troughs or boxes. A Californian "tom" is about 12 feet long, 20 inches wide at the upper end, and 30 inches wide at the mouth. It is supported on stones or logs, and is worked by two to four men, according to the nature of the pay dirt and the supply of water. The apparatus is used only where water can be brought to it, so that a constant flow is secured.

The spout or water trough leads the water into the upper box or "tom" proper. The lower end of this box is cut off obliquely, and the mouth is stopped by a sheet of iron perforated closely with holes about a half inch in diameter. The "tom" slants on an angle so that the upper or spout end is 12 inches higher than the lower or grating end. The riffle-box, which like the "tom" is made of rough plank, is placed so that the mass of water,

sand, fine gravel, clay, and gold falls into its upper end through the perforations in the grating.

From 5 to 7 riffle-bars are nailed on the bottom of the riffle-box, and the box is placed on an incline sufficient to allow the water passing over it to carry off the light earthy and clayey materials, leaving the gold encased in the fine mud which will form on the bottom. In some cases a little mercury is placed behind the riffle-bars to assist in holding the gold, and occasionally a series of blanket aprons are used to catch the fine gold that will go through with the tailings.

The stream of water flows continuously. The dirt is thrown into the "tom" or upper trough by one man, while his partner stirs it about with a square edged shovel or a blunt pronged fork. The floor of the "tom" is covered with sheet-iron, tin, or any sheet metal which may be at hand, to save wear and tear of the floor. The grating prevents the heavy stones and gravel from passing through. The "long toms" are cleaned up periodically, and the gold or amalgam, in case mercury is used, is panned out.

Sluices can be used only where there is an abundant supply of water. Sluices are of two kinds; the box-sluice, which is raised above the surface necessitating the raising of pay dirt into them; the ground sluice, which is generally sunk below the surface. The box-sluice is a long wooden trough or a series of troughs, varying from 50 feet to several thousand feet in length. The width is never less than 12 inches, nor more than 60 inches; generally 16 to 18 inches. The height of the sides varies from 8 to 12 inches.

A sluice is made up in sections, each from 12 to 14 feet long. Each section is built of one and an inch rough plank, and one end is made wider than the other so that

the sections can be fitted or telescoped into each other as a stovepipe is made up. The troughs rest on trestles and are down grade all the way from pay dirt. The slant or incline varies from 8 to 18 inches for every running foot of trough. A fall of 8 inches is called an "8-inch grade," 10 inches a 10-inch grade. The shorter the sluice the smaller the grade should be, as there is more danger or fine gold being lost in a short than in a long sluice.

The nature of the ground, the supply of water and the character of the material in which the gold is found must determine the grade of the sluice. If the clay is tough and balls easily, the grade should be steep. In general it may be said the steeper the grade the more quickly the dirt is dissolved in the water. But at the same time the force of the water is more likely to carry away the fine gold.

Ordinary pay dirt generally is completely dissolved in a moderately low grade sluice in the first 200 feet of flow. Any extra length added to this is useful only to catch the finer gold. In such case this length is of a much lower grade, that is, less slanting than the working part of the sluice. When the incline of a sluice is slight gold is easily caught, and much of it will be caught on the smooth floor of the sluice without the aid of riffle-bars. Where there are plenty of stones, a number of them may be placed at the mouth of each section of a sluice to prevent the bottom from being "run bare."

Generally, however, a false bottom is used in the sluice, designed not only to catch, but to save the wear and tear on the floor of the sluice itself. In California false bottoms are made of riffle-bars, which run lengthwise with the sluice about 6 feet long, 3 to 7 inches wide and 2 to 4 inches thick; 2 sets for each length of sluice. They are

kept in place by cross-pieces, which wedge them down against the side of the trough.

The false bottoms are not nailed down to the sluice as they must be removed at every cleaning up. The gold and other heavy material fall through this false floor sinking through the lighter material to the box floor. A modification of the false bottom is the block and zig-z riffles. False bottoms generally wear away in a we or less if there is a great quantity of pebbles and boulders in the pay dirt.

Where such material is handled it is best to use block riffles. The wood for block riffles is cut across the grain so that the fibers stand upright in the sluice box, as in the tree. Zig-zag riffles consist of bars which are nailed to the bottom of the sluice at an angle of 45 degrees to the side, reaching diagonally across to within an inch of the other side. Such gold and heavy materials as are not completely caught in this zig-zag course are caught with a supplemental stretch of ordinary longitudinal riffles.

A ground sluice is nothing more nor less than a gutter or ditch excavated in the ground, and it is only used when lumber cannot be obtained for making a board sluice or when the amount of water available is not sufficient for a continuous supply for a box sluice. It sometimes happens that a heavy fall of rain will furnish a head of water for a short time, but not long enough to pay for building a box sluice. Under such conditions the miner resorts to the ground sluice, provided he has enough fall and outlet for the tailings.

A ground sluice will use up 6 times as much water as a box sluice to do the same amount of work. The gutter is formed partly by taking the stream through it, assisted by loosening the earth with a pick; when the gutter is made the pay dirt is either washed into it by the stream it-

self or carried by the miners. If the miner is fortunate enough to have a hard and uneven bed rock for the bottom of his ground sluice, the rough floor will be enough, in itself, to hold the gold, but boulders and heavy stones, too large to be moved by the water, can be thrown in haphazard on the bottom of the ground sluice to take the place of riffle-bars. Of course no mercury is used.

The process of cleaning up a ground sluice is started by diverting the water from the channel. Then the gold with its sand is collected and is panned out or else washed through a cradle or a "long tom," or a short box-sluice.

Riffle-bars, boulders and blankets will catch a large percentage of gold in pay dirt; probably all of the heavy part of gold, but a large amount of fine gold would escape were it not for the use of mercury. Mercury acts upon gold as a magnet does upon iron. Mercury in the presence of gold forms an amalgam. It is used in sluices in various ways. When zig-zag riffle-bars are used, a vessel containing quicksilver is placed near the head of the sluice. A tiny hole in the vessel permits the mercury to escape in minute portions. It trickles down from riffle to riffle, overtakes the gold and forms an amalgam, which is caught in the longitudinal riffles near the end of the sluices.

In the ordinary sluice, where the riffle-bars are placed lengthwise, mercury is poured in at the head of the sluice about two hours after the washing is started. The mercury finds its way down slowly, but remains generally in the upper boxes. On this account small portions are introduced at intervals lower down; the amount being increased according to the amount of fine gold present.

Where the gold is exceedingly fine copper plates are used. A plate will measure 3 feet wide and 6 feet long, and sometimes the stream is divided and carried over

several plates. The plate is placed nearly level and at a good distance from the head of the sluice, as it is used only for catching the finest gold dust. A sheet-iron screen, perforated with slits one-half inch long and a sixteenth of an inch wide, is placed in front of the copper plate, so that only the finest particles of gold will pass over the plate.

The copper is amalgamated as follows: A weak nitric acid is washed over the upper surface, and then some mercury, which has been treated with dilute nitric acid to form a little nitrate of mercury, is applied on the surface of the copper. If this amalgamation is well performed once it need not be repeated, as it will only require some fresh mercury to be dropped on it as fast as the gold converts it into amalgam. The flow of water should be slow and shallow so that every bit of gold can come in contact with the face of the plate.

Sometimes a newly amalgamated plate becomes coated with a green slime (due to the formation of subsalts of copper), and then is incapable of absorbing the gold. This slime must be scraped off carefully, and the scraped spots must be rubbed with fresh mercury. To remove the amalgam, the plate is taken up and heated to a degree which will make the copper plate uncomfortably warm. This will soften and loosen the amalgam, which then can be easily scraped off. The copper is then allowed to cool and again is rubbed with a little ordinary mercury. The copper should not be less than one-sixteenth of an inch thick, and as the mercury makes it brittle as glass it must be handled with considerable care.

The process of cleaning of gold, mercury and amalgam caught in a sluice is as follows: Cleaning up generally is effected after every 6 or 7 days' run. The miner, when he is ready to clean up, stops feeding in pay dirt, but lets

the water run through the sluice boxes until it comes out in a clear stream. Beginning at the head of the sluice the first 5 or 6 sets of riffle-bars are lifted out of the boxes. Some of the dirt will be dislodged. This is washed down into the next set of boxes and the mass of heavy gold, and black sand and clay, or other materials caught in the first set of boxes, is scraped out with a spoon. The next sets then are treated the same way and so on until the end of the sluice.

The amalgam and mercury taken out are placed in a buckskin or canvas bag, where it is subjected to pressure; either squeezed between the hands or placed under a weight. The excess of mercury will be forced through the pores of buckskin or canvas into a vessel placed beneath to catch it. The amalgam remaining is sponge-like in texture and is largely pure gold. The gold is separated from the amalgam and the mercury by placing the amalgam in a retort and subjecting it to the heat.

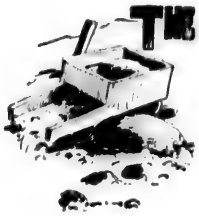
The California pump was used with great success by placer miners in the golden state. It is what might be called a chain pump. A rectangular box 10 inches wide and 3 inches high inside measurement, and from 10 to 30 feet long, is traversed by an endless flexible belt or band of canvas. On one side of the belt pieces of wood, just enough smaller than the inside of the box to permit clearance, are nailed to the canvas. At the lower end of the box, which dipped into the water, is a roller around which the belt passes. At the upper end the belt passes around a second roller or drum, which is made to revolve by a crank.

The faces of the blocks, which are called buckets or suckers, are covered with leather which projects somewhat beyond the edges of the wood. In operation the miner causes the drum at the upper end of the box to re-

volve. This puts the canvas belt in motion and the buckets, catching the water of the stream, carry it up through the water-box, emptying it out into the reservoir or cradle, "long tom" or short box-sluice. Such pumps are exceedingly useful where the gold-bearing earth is high up on the banks of a ravine or in the side of a gulch.

CHAPTER VII.

UNITED STATES MINING LAWS.



THE LAND district of Alaska was created by act of congress May 17, 1884, and the land commissioner was made ex-officio register of the land office; and the marshal of the district was made ex-officio surveyor-general of the district. That portion of the act providing a civil government in Alaska, which is of direct interest to gold seekers in Alaska, reads as follows:

"Sec. 8. That the said district of Alaska is hereby created a land district, and a United States land office for said district is hereby located at Sitka. The commissioner provided for by this act to reside at Sitka shall be ex-officio register of said land office, and the clerk provided for by this act shall be ex-officio receiver of public moneys, and the marshal provided for by this act shall be ex-officio surveyor-general of said district, and the laws of the United States relating to mining claims, and the rights incident thereto, shall, from and after the passage of this act, be in full force and effect in said district, under the administration thereof herein provided for, subject to such regulations as may be made by the secretary of the interior, approved by the president: Provided, That the Indians or other persons in said district shall not be disturbed in the possession of any lands actually in their use or occupation or now claimed by them, but the terms under which such persons may acquire title to such lands

is reserved for future legislation by congress: And provided further, That parties who have located mines or mineral privileges therein under the laws of the United States applicable to the public domain, or who have occupied and improved or exercised acts of ownership over such claims, shall not be disturbed therein, but shall be allowed to perfect their title to such claims by payment as aforesaid: And provided also, That the land not exceeding six hundred and forty acres at any station now occupied as missionary stations among the Indian tribes in said section, with the improvements thereon erected by or for such societies, shall be continued in the occupancy of the several religious societies to which said missionary stations respectively belong until action by congress. But nothing contained in this act shall be construed to put in force in said district the general laws of the United States."

Land office regulations providing for the administration of the mining laws, as prescribed by the regulations of the land office, will be adopted for and extended to Alaska as far as applicable.

Under section 2318 of the United States law, all lands, valuable for minerals, are reserved from sale, except as otherwise expressly directed by law.

License to explore, occupy and purchase mineral lands is authorized as follows:

"Sec. 2319. All valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase, by citizens of the United States and those who have declared their intention to become such, under regulations prescribed by law, and according to the local customs or rules of miners in the

several mining districts, so far as the same are applicable and not inconsistent with the laws of the United States."

Locators must show proof of citizenship or an intention to become citizens. This may be done as provided in the following section:

"Sec. 2321. Proof of citizenship, under this chapter, may consist, in the case of an individual, of his own affidavit thereof; in the case of an association of persons unincorporated, of the affidavit of their authorized agent, made on his own knowledge, or upon information and belief; and in the case of a corporation organized under the laws of the United States, or of any state or territory thereof, by the filing of a certified copy of their charter or certificate of incorporation."

The Supreme Court of the United States has defined the term "placer claim" as "Ground within defined boundaries which contains mineral in its earth, sand or gravel; ground that includes valuable deposits not in place, that is, not fixed in rock, but which are in a loose state, and may in most cases be collected by washing or amalgamation without milling."

The section relating to "placer claims" defines "placer" as follows:

"Section 2329. Claims usually called 'placer,' including all forms of deposits, excepting veins of quartz, or other rock in place, shall be subject to entry and patent, under like circumstances and conditions, and upon similar proceedings, as are provided for vein or lode claims; but where the lands have been previously surveyed by the United States, the entry in its exterior limits shall conform to the legal subdivisions of the public lands."

In locating "placer claims" the law provides that no location of such claim upon surveyed ground shall include more than twenty acres for each individual claim-

ant. The Supreme Court, however, has held that one individual can hold as many locations as he can purchase and rely upon his possessory title; that a separate patent for each location is unnecessary. The United States law relating to placer claims reads as follows:

"Section 2329. Claims usually called 'placer,' including all forms of deposit, excepting veins of quartz, or other rock in place, shall be subject to entry and patent, under like circumstances and conditions, and upon similar proceedings, as are provided for vein or lode claims; but where the lands have been previously surveyed by the United States, the entry in its exterior limits shall conform to the legal subdivisions of the public lands."

"Section 2330. Legal subdivisions of forty acres may be subdivided into ten-acre tracts; and two or more persons, or associations of persons, having contiguous claims of any size, although such claims may be less than ten acres each, may make joint entry thereof; but no location of a placer-claim, made after the ninth day of July, eighteen hundred and seventy, shall exceed one hundred and sixty acres for any one person or association of persons, which location shall conform to the United States surveys; and nothing in this section contained shall defeat or impair any bona fide pre-emption or homestead claim upon agricultural lands, or authorize the sale of the improvements of any bona fide settler to any purchaser."

"Section 2331. Where placer-claims are upon surveyed lands, and conform to legal subdivisions, no further survey or plat shall be required, and all placer-mining claims located after the tenth day of May, eighteen hundred and seventy-two, shall conform as near as practicable with the United States system of public-land surveys, and the rectangular subdivisions of such surveys,

and no such location shall include more than twenty acres for each individual claimant; but where placer-claims can not be conformed to legal subdivisions, survey and plat shall be made as on unsurveyed lands; and where by the segregation of mineral lands in any legal subdivision a quantity of agricultural land less than forty acres remains, such fractional portions of agricultural land may be entered by any party qualified by law, for homestead or pre-emption purposes."

The following section relates to the application for a patent for lode and placer claims:

"Section 2335. A patent for any land claimed and located for valuable deposits may be obtained in the following manner: Any person, association, or corporation authorized to locate a claim under this chapter, having claimed and located a piece of land for such purposes, who has, or have, complied with the terms of this chapter, may file in the proper land-office an application for a patent, under oath, showing such compliance, together with a plat and field-notes of the claim or claims in common, made by or under the direction of the United States surveyor-general, showing accurately the boundaries of the claim or claims, which shall be distinctly marked by monuments on the ground, and shall post a copy of such plat, together with a notice of such application for a patent, in a conspicuous place on the land embraced in such plat previous to the filing of the application for a patent, and shall file an affidavit of at least two persons that such notice has been duly posted, and shall file a copy of the notice in such land office, and shall thereupon be entitled to a patent for the land in the manner following: The register of the land office, upon the filing of such application, plat, field notes, notices, and affidavits, **shall publish a notice that such application has been**

made, for the period of sixty days, in a newspaper to be by him designated as published nearest to such claim; and he shall also post such notice in his office for the same period. The claimant at the time of filing this application, or at any time thereafter, within the sixty days of publication, shall file with the register a certificate of the United States surveyor-general that five hundred dollars' worth of labor has been expended or improvements made upon the claim by himself or grantors; that the plat is correct, with such further description by such reference to natural objects or permanent monuments as shall identify the claim, and furnish an accurate description, to be incorporated in the patent. At the expiration of the sixty days of publication the claimant shall file his affidavit, showing that the plat and notice have been posted in a conspicuous place on the claim during such period of publication. If no adverse claim shall have been filed with the register and the receiver of the proper land-office at the expiration of the sixty days of publication, it shall be assumed that the applicant is entitled to a patent, upon the payment to the proper officer of five dollars per acre, and that no adverse claim exists; and thereafter no objection from third parties to the issuance of a patent shall be heard, except it be shown that the applicant has failed to comply with the terms of this chapter."

Locators on placer claims which contain lodes are brought within the provisions of the following section:

"Section 2333. Where the same person, association, or corporation is in possession of a placer claim, and also a vein or lode included within the boundaries thereof, application shall be made for a patent for the placer claim, with the statement that it includes such vein or lode, and in such case a patent shall issue for a placer claim, sub-

ject to the provisions of this chapter, including such vein or lode, upon the payment of five dollars per acre for such vein or lode claim, and twenty-five feet of surface on each side thereof. The remainder of the placer claim, or any placer claim not embracing any vein or lode claim, shall be paid for at the rate of two dollars and fifty cents per acre, together with all costs of proceedings; and where a vein or lode, such as is described in section 2320 is known to exist within the boundaries of a placer claim, an application for a patent for such placer claim which does not include an application for the vein or lode claim shall be construed as a conclusive declaration that the claimant of the placer claim has no right of possession of the vein or lode claim; but where the existence of a vein or lode in a placer claim is not known, a patent for the placer claim shall convey all valuable mineral and other deposits within the boundaries thereof."

The land office regulations relating to placer claims containing lodes read as follows:

"Applicants for patent to a placer claim who are also in possession of a known vein or lode included therein must state in their application that the placer includes such vein or lode. The published and posted notices must also include such statement. If veins or lodes lying within a placer location are owned by other parties the fact should be distinctly stated in the application for patent and in all the notices. But in all cases whether the lode is claimed or excluded, it must be surveyed and marked upon the plat; the field notes and plat giving the area of the lode claim or claims and the area of the placer separately. It should be remembered that an application which omits or includes an application for a known vein or lode therein, must be construed as a conclusive declaration that the applicant has no right of possession to

the vein or lode. Where there is no known lode or vein the fact must appear by the affidavit of two or more witnesses."

The section of the United States law relating to "lode" claims reads as follows:

"Section 2320. Mining claims upon veins or lodes of quartz or other rock in place, bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits heretofore located, shall be governed as to length along the vein or lode by the customs, regulations, and laws in force at the date of their location. A mining claim located after the tenth day of May, eighteen hundred and seventy-two, whether located by one or more persons, may equal, but shall not exceed one thousand five hundred feet in length along the vein or lode; but no location of a mining claim shall be made until the discovery of the vein or lode within the limits of the claim located. No claim shall extend more than three hundred feet on each side of the middle of the vein at the surface, nor shall any claim be limited by any mining regulation to less than twenty-five feet on each side of the middle of the vein at the surface, except where adverse rights existing on the tenth day of May, eighteen hundred and seventy-two, render such limitation necessary. The end lines of each claim shall be parallel to each other."

"Section 2322. The locators of all mining locations heretofore made or which shall hereafter be made, on any mineral vein, lode, or ledge, situated on the public domain, their heirs and assigns, where no adverse claim exists on the tenth day of May, eighteen hundred and seventy-two, so long as they comply with the laws of the United States, and with state, territorial, and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the

exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges. And nothing in this section shall authorize the locator or possessor of a vein or lode which extends in its downward course beyond the vertical lines of his claim to enter upon the surface of a claim owned or possessed by another."

The United States law permits miners of each mining district to make regulations governing location, manner of recording, etc., so long as the rules and regulations do not conflict with the federal statutes. The section giving this permission reads as follows:

"Section 2324. The miners of each mining district may make regulations not in conflict with the laws of the United States, or with the laws of the state or territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining claim, subject to the following requirements: The location must be distinctly marked on the ground, so that its boundaries can be readily traced. All records of mining claims hereafter made shall contain the name or names of the locators, the date of

the location, and such a description of the claim or claims located by reference to some natural object or permanent monument as will identify the claim. On each claim located after the tenth day of May, eighteen hundred and seventy-two, and until a patent has been issued therefor, not less than one hundred dollars' worth of labor shall be performed or improvements made during each year. On all claims located prior to the tenth day of May, eighteen hundred and seventy-two, ten dollars' worth of labor shall be performed or improvements made by the tenth day of June, eighteen hundred and seventy-four, and each year thereafter, for each one hundred feet in length along the vein, until a patent has been issued therefor; but where such claims are held in common, such expenditure may be made upon any one claim; and upon a failure to comply with these conditions, the claim or mine upon which such failure occurred shall be opened to relocation in the same manner as if no location of the same had ever been made; Provided, that the original locators, their heirs, assigns, or legal representatives, have not resumed work upon the claim after failure and before such location. Upon the failure of any one of several co-owners to contribute his proportion of the expenditures required hereby, the co-owners who have performed the labor or made the improvements may, at the expiration of the year, give such delinquent co-owner personal notice in writing or notice by publication in the newspaper published nearest the claim, for at least once a week for ninety days, and if at the expiration of ninety days after such notice in writing or by publication such delinquent should fail or refuse to contribute his proportion of the expenditure required by this section, his interest in the claim shall become the property of his co-owners, who have made the expenditures."

WORK AT NIGHT.

Other sections of the United States law relating to mines and mining are as follows:

"Section 2323. Where a tunnel is run for the development of a vein or lode or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within three thousand feet from the face of such tunnel on the line thereof, not previously known to exist, discovered in such tunnel, to the same extent as if discovered from the surface; and locations on the line of such tunnels of veins or lodes, not appearing on the surface, made by other parties after the commencement of the tunnel, and while the same is being prosecuted with reasonable diligence, shall be invalid; but failure to prosecute the work on the tunnel for six months shall be considered as an abandonment of the right to all undiscovered veins on the line of such tunnel."

"Section 2332. Where such person or association, they and their grantors, have held and worked their claims for a period equal to the time prescribed by the statute of limitations for mining claims of the state or territory where the same may be situated, evidence of such possession and working of the claims for such period shall be sufficient to establish a right to a patent thereto under this chapter, in the absence of any adverse claim; but nothing in this chapter shall be deemed to impair any lien which may have attached in any way whatever to any mining claim or property thereto attached prior to the issuance of a patent."

"Section 2326. Where an adverse claim is filed during the period of publication, it shall be upon oath of the person or persons making the same, and shall show the nature, boundaries, and extent of such adverse claim, and all proceedings, except the publication of notice and making and filing of the affidavit thereof, shall be stayed

until the controversy shall have been settled or decided by a court of competent jurisdiction, or the adverse claim waived. It shall be the duty of the adverse claimant, within thirty days after filing his claim, to commence proceedings in a court of competent jurisdiction, to determine the question of the right of possession, and prosecute the same with reasonable diligence to final judgment; and a failure so to do shall be a waiver of his adverse claim. After such judgment shall have been rendered the party entitled to the possession of the claim, or any portion thereof, may, without giving further notice, file a certified copy of the judgment-roll with the register of the land office, together with the certificate of the surveyor general that the requisite amount of labor has been expended or improvements made thereon, and the description required in other cases, and shall pay to the receiver five dollars per acre for his claim, together with the proper fees, whereupon the whole proceedings and the judgment-roll shall be certified by the register to the commissioner of the general land office, and a patent shall issue thereon for the claim, or such portion thereof as the applicant shall appear, from the decision of the court, to rightly possess. If it appears from the decision of the court that several parties are entitled to separate and different portions of the claim, each party may pay for his portion of the claim with the proper fees and file the certificate and description by the surveyor general, whereupon the register shall certify the proceedings and judgment-roll to the commissioner of the general land office, as in the preceding case, and patents shall issue to the several parties according to their respective rights. Nothing herein contained shall be construed to prevent the alienation of a title conveyed by a patent for a mining claim to any person whatever."

CHAPTER VIII.

CANADIAN MINING LAWS.

MINERS in the Klondike region must pay the Canadian government an entry fee of $15 for the first year, and an annual fee of $100 for each of the following years. No miner will receive a grant for more than one mining claim in the same locality, but the same miner may hold any number of claims by purchase.

The Dominion government proposes to charge a royalty for the use of its land by gold miners. This royalty will amount to 10 per cent on all amounts taken out of any one claim up to $500 a week, and over that output 20 per cent. The royalty will be collected on gold taken from streams already being worked, but in regard to all future discoveries, the government proposes that upon every river and creek where mining locations shall be staked out, every alternate claim shall be the property of the crown.

The regulations governing placer mining along the Yukon river and its tributaries in the Northwest territory, adopted by the Canadian government, are as follows:

DEFINITIONS:

BAR DIGGINGS shall mean any part of a river over which the water extends when the water is in its flooded state, and which is not covered at low water.

MINES ON BENCHES shall be known as bench diggings, and shall for the purpose of defining the size of such claims be excepted from dry diggings.

DRY DIGGINGS shall mean any mine over which a river never extends.

MINER shall mean a male or female over the age of 18, but not under that age.

CLAIMS shall mean the personal right of property in a placer mine or diggings during the time for which the grant of such mine or diggings is made.

LEGAL POST shall mean a stake standing not less than four feet above the ground and squared on four sides for at least one foot from the top. Both sides so squared shall measure at least four inches across the face. It shall also mean any stump or tree cut off and squared or faced to the above height and size.

CLOSE SEASON shall mean the period of the year during which placer mining is generally suspended. The period to be fixed by the gold commissioner in whose district the claim is situated.

LOCALITY shall mean the territory along a river (tributary of the Yukon), and its affluents.

MINERAL shall include all minerals whatsoever other than coal.

NATURE AND SIZE OF CLAIMS.

FIRST—Bar diggings: A strip of land 100 feet wide at high watermark and thence extending along into the river to its lowest water level.

SECOND—The sides of a claim for bar diggings shall be two parallel lines run as nearly as possible at right angles to the stream and shall be marked by four legal posts, one at each end of the claim at or about high water-

mark, also one at each end of the claim at or about the edge of the water. One of the posts at high watermark shall be legibly marked with the name of the miner and the date upon which the claim is staked.

THIRD—Dry diggings shall be 100 feet square and shall have placed at each of its four corners a legal post, upon one of which shall be legibly marked the name of the miner and the date upon which the claim was staked.

FOURTH—Creek and river claims shall be 500 feet long, measured in direction of the general course of the stream, and shall extend in width from base to base of the hill or bench on each side, but when the hill or benches are less than 100 feet apart, the claim may be 100 feet in depth. The sides of a claim shall be two parallel lines run as nearly as possible at right angles to the stream. The sides shall be marked with legal posts at or about the edge of the water, and at the rear boundaries of the claim. One of the legal posts at the stream shall be legibly marked with the name of the miner and the date upon which the claim was staked.

Note.—The regulation relating to the length of a claim was amended Aug. 8, by the dominion government: the new regulation limits the length of a claim to 100 feet, running along the stream.

FIFTH—Bench claims shall be 100 feet square.

SIXTH—In defining the size of claims, they shall be measured horizontally, irrespective of inequalities on the surface of the ground.

SEVENTH—If any person or persons shall discover a new mine, and such discovery shall be established to the satisfaction of the gold commissioner, a claim for the bar diggings 750 feet in length may be granted.

A new stratum of auriferous earth or gravel situated in a locality where the claims are abandoned shall, for this

purpose, be deemed a new mine, although the same locality shall have previously been worked at a different level.

EIGHTH—The forms of application for a grant for placer mining and the grant of the same shall be those contained in forms "H" and "I" in the schedule hereto.

NINTH—A claim shall be recorded with the gold commissioner in whose district it is situated within three days after the location thereof, if it is located within ten miles of the commissioner's office. One extra day shall be allowed for making such record for every additional ten miles and fraction thereof.

TENTH—In the event of the absence of the gold commissioner from his office, entry for a claim may be granted by any person whom he may appoint to perform his duties in his absence.

ELEVENTH—Entry shall not be granted for a laim which has not been staked by the applicant in person, in the manner specified in these regulations. An affidavit that the claim was staked out by the applicant shall be embodied in form "H" of the schedule hereto.

TWELFTH—An entry fee of $15 shall be charged the first year and an annual fee of $100 for each of the following years. This provision shall apply to the locations for which entries have already been granted.

THIRTEENTH—After the recording of a claim, the removal of any post by the holder thereof, or any person acting in his behalf, for the purpose of changing the boundaries of his claim, shall act as a forfeiture of the claim.

FOURTEENTH—The entry of every holder for a grant for placer mining must be renewed, and his receipt relinquished and replaced every year, the entry fee being paid each year.

FIFTEENTH—No miner shall receive a grant for

more than one mining claim in the same locality; but the same miner may hold any number of claims by purchase, and any number of miners may unite to work their claims in common upon such terms as they may arrange, provided such agreement be registered with the gold commissioner and a fee of $5 paid for each registration.

SIXTEENTH—Any miner or miners may sell, mortgage, or dispose of his or their claims, provided such disposal be registered with, and a fee of $2 paid to the gold commissioner, who shall thereupon give the assignee a certificate in form "J" in the schedule hereto.

SEVENTEENTH—Every miner shall, during the continuance of his grant, have the exclusive right of entry upon his own claim for the miner-like working thereof, and the construction of a residence thereon, and shall be entitled exclusively to all the proceeds realized therefrom; but he shall have no surface rights therein, and the gold commissioner may grant to the holders of adjacent claims such rights of entry thereon as may be absolutely necessary for the working of their claims, upon such terms as may to him seem reasonable. He may also grant permits to miners to cut timber thereon for their own use, upon payment of the dues prescribed by the regulations in that behalf.

EIGHTEENTH—Every miner shall be entitled to the use of so much of the water naturally flowing through or past his claim, and not already lawfully appropriated, as shall in the opinion of the gold commissioner, be necessary for the due working thereof, and shall be entitled to drain his own claim free of charge.

NINETEENTH—A claim shall be deemed to be abandoned and open to occupation and entry by any person when the same shall have remained unworked on working days by the grantee thereof or by some person

on his behalf for the space of seventy-two hours, unless sickness or other reasonable cause may be shown to the satisfaction of the gold commissioner, or unless the grantee is absent on leave given by the commissioner, and the gold commissioner, upon obtaining evidence satisfactory to himself that this provision is not being complied with, may cancel the entry given for a claim.

TWENTIETH—If the land upon which a claim has been located is not the property of the crown it will be necessary for the person who applies for entry to furnish proof that he has acquired from the owner of the land the surface right before entry can be granted.

TWENTY-FIRST—If the occupier of the lands has not received a patent therefor, the purchase money of the surface rights must be paid to the crown, and a patent of the surface rights will issue to the party who acquired the mining rights. The money so collected will either be refunded to the occupier of the land when he is entitled to a patent therefor, or will be credited to him on account of payment for land.

TWENTY-SECOND—When the party obtaining the mining rights cannot make an arrangement with the owner thereof for the acquisition of the surface rights it shall be lawful for him to give notice to the owner or his agent, or the occupier to appoint an arbitrator to act with another arbitrator named by him in order to award the amount of compensation to which the owner or occupant shall be entitled. The notice mentioned in this section shall be according to form to be obtained upon application from the gold commissioner for the district in which the lands in question lie, and shall, when practicable, be personally served on such owner or his agent, if known, or occupant, and after reasonable efforts have been made to effect personal service without suc-

cess, then such notice shall be served upon the owner or agent within a period to be fixed by the gold commissioner before the expiration of the time limited in such notice. If the proprietor refuses or declines to appoint an arbitrator, or when, for any other reason, no arbitrator is appointed by the proprietor in the time limited therefor in the notice provided by this section, the gold commissioner for the district in which the lands in question lie shall, on being satisfied by affidavit that such notice has come to the knowledge of such owner, agent or occupant, or that such owner, agent or occupant, willfully evades the service of such notice, or cannot be found, and that reasonable efforts have been made to effect such service, and that the notice was left at the last place of abode of such owner, agent or occupant, appoint an arbitrator on his behalf.

TWENTY-THIRD—(a) All arbitrators appointed under the authority of these regulations shall be sworn before a justice of the peace to the impartial discharge of the duties assigned to them, and they shall forthwith proceed to estimate the reasonable damages which the owner or occupant of such lands according to their several interests therein shall sustain by reason of such prospecting and mining operations.

(b) In estimating such damages the arbitrators shall determine the value of the land, irrespectively of any enhancement thereof from the existence of mineral therein.

(c) In case such arbitrators cannot agree they may select a third arbitrator, and when the two arbitrators cannot agree upon a third arbitrator, the gold commissioner for the district in which the lands in question lie shall select such third arbitrator.

(d) The award of any two such arbitrators made in

writing shall be final, and shall be filed with the gold commissioner for the district in which the lands lie.

If any cases arise for which no provision is made in these regulations, the provisions of the regulations governing the disposal of mineral lands other than coal lands approved by his excellency the governor in council on the 9th of November, 1889, shall apply.

CERTIFICATE OF ASSIGNMENT OF A PLACER MINING CLAIM.

Form "J."

No.....

Department of the Interior.

Agency.....18....

This is to certify that (B. C.) has (or have) filed an assignment in due form dated.....18.... and accompanied by a registration fee of two dollars, of the grant to.....(A. B.) of .....of the right to mine in .....(insert description of claim) for one year from.....18....

This certificate entitles the said..... (B. C.) to all rights and privileges of the said..... (A. B.) in respect of the claim assigned, that is to say, the exclusive right of entry upon the said claim for the miner-like working thereof and the construction of a residence thereon, and the exclusive right to all proceeds therefrom for the remaining portion of the year for which said claim was granted to the said..... (A. B.), that is to say, until the .....18....

The said .....(B. C.) shall be entitled to the use of so much of the water naturally flowing

through or past his (or their) claim, and not already lawfully appropriated, as shall be necessary for the due working thereof, and to drain the claim free of charge.

This grant does not convey to the said.....(B. C.) any surface rights in said claim or any rights of ownership in the soil covered by the said claim, and the said grant shall lapse and be forfeited unless the claim is continually and in good faith worked by the said (B. C.) or his (or their) associates.

The rights hereby granted are those laid down in the Dominion Mining Regulations, and are subject to all provisions of the said regulations whether the same are expressed herein or not.

....,
Gold Commissioner.

APPLICATION FOR GRANT FOR PLACER MINING CLAIM AND AFFIDAVIT OF APPLICANT.

Form "H."

I, (or we) of.....hereby apply under the Dominion Mining Regulations for grant of a claim for placer mining as defined in the said regulations in.....(here describe locality) and I (or we) solemnly swear:

First—That I (or we) am (or are) to the best of my (or our) knowledge and belief, the first discoverer (or discoverers) of the said deposit, or

Second—That the said claim was previously granted to.....(here name the last grantee), but has remained unworked by the said grantee for not less than .....

Third—That I (or we) am (or are) unaware that the land is other than vacant Dominion lands.

Fourth—That I (or we) did on the .....day of.....mark out on the ground in accordance in every particular with the provisions of the mining regulations for the Yukon river and its tributaries, the claim for which I (or we) make this application, and that in so doing I (or we) did not encroach on any other claim or mining location previously laid out by any other person.

Fifth—That the said claim contains as nearly as I (or we) could measure or estimate an area of..... square feet, and that the description (and sketch, if any) of this date hereto attached signed by me (or us) sets (or set) forth in detail to the best of my (or our) knowledge and ability its position, form and dimensions.

Sixth—That I (or we) make this application in good faith to acquire the claim for the sole purpose of mining, prosecuted by myself (or us), or by myself and associates, or by my (or our) assigns.

Sworn before me

At..... this .....day of .....18....

(Signature)

.....

GRANT FOR PLACER CLAIM.

Form "I."

Department of the Interior.

Agency.....18....

In consideration of the payment of the fee prescribed by clause 12 of the mining regulations of the Yukon river

and its tributaries by .....(A. B.) accompanying his (or their) application No. ..... dated .....18.... for a mining claim in ..... (here insert description of locality), the minister of the interior hereby grants to the said .....(A. B.) for the term of one year from the date hereof the exclusive right of entry upon the claim (here describe in detail the claim).

Granted—For the miner-like working thereof and the construction of a residence thereon, and the exclusive right to all the proceeds derived therefrom. That the said .....(A. B.) shall be entitled to the use of so much water naturally flowing through or past his (or their) claim and not already lawfully appropriated as shall be necessary for the due working thereof, and to drain his (or their) claim free of charge.

This grant does not convey to the said ..... (A. B.) any surface right in the said claim or any right of ownership in the soil covered by the said claim, and the said grant shall lapse and be forfeited unless the claim is continuously and in good faith worked by the said .....(A. B.) or his (or their) associates.

The rights hereby granted are those laid down in the aforesaid mining regulations and no more, and are subject to all the provisions of the said regulations, whether the same are expressed herein or not.

.....

Gold Commissioner.

CHAPTER IX.

RICHNESS OF THE PLACER MINES.

WILLIAM D. JOHNS of Chicago, a special correspondent of the CHICAGO RECORD, who has been in Alaska for two years, was at Circle City, Alaska, when the news of the gold strike of the Klondike reached the miners of that town. His letter, detailing the richness of the field, and telling of the hardships and successes of the prospectors, was the first letter from a newspaper correspondent to reach the outside world. It was brought to San Francisco by the Excelsior, the vessel which brought the first of the returning and successful miners home. It was as follows:

"Fourteen miles from Dawson City, twelve miles up Bonanza creek, which empties into the Klondike river one and one-half miles from the Yukon, gold was discovered by 'Siwash' George Carmack and his two Indian brothers-in-law last August. The credit for the discovery really belongs to the Indians. A stampede from Circle City, Forty Mile and other camps was the result of this find, but few had much faith in the new region even after they were on the ground, and in spite of the rich prospects on the surface it was generally regarded as a 'grub-stake' strike on which any one might succeed in getting a winter outfit.

"A little later, however, the prospects found on the river called forth the half-skeptical remark that 'if it goes

down it is the greatest thing on earth.' Then a few began to believe in the new diggings, but many old miners even yet would not stake out claims, thinking the creek too wide for gold. A number of side gulches along the Bonanza were staked, among them El Dorado, which was rich in gravel near the mouth. But so little faith was manifested in the region that claim holders could not get 'grub' from the stores in exchange for their prospects. There was a general fear that these might be only 'skim diggings.'

"In December bed rock was reached on No. 14 El Dorado and fabulously rich pay dirt was found. Then more holes went down in a hurry. Everywhere were discovered prospects on bed rock ranging from $5 to $150 to the pan. The gold was nearly all coarse. Still the greatness of the strike was not realized. Some of the best claims were sold by their owners for a few hundreds or a few thousands. Drifting was carried on by the usual winter process of "burning," and the pay dirt taken out as rapidly as possible under the difficulties of intense cold.

"Pans as rich as $500 were discovered, and nuggets containing gold worth as high as $235 were brought to light. Claims jumped up enormously in price, but still many men sold for a small part of the value of their holdings. They seemed wholly unable to realize their good fortune. Doubts were still expressed about the dumps holding out to the prospects.

"Then the test—sluicing—came in the spring when the ice melted and the water ran down from the hills. Then the wildest hopes of the toiling miners were realized. Despite the lateness of commencing work and the scarcity of men about $1,500,000 was taken out of El Dorado alone. On some of the richer claims men who

secured ground to work on shares—50 per cent—cleared $5,000 to $10,000 apiece in from thirty days' to two months' drifting. As high as $150,000 was drifted out of one claim, the other sums being less. From seventy-five feet of ground on Nos. 25 and 26, El Dorado, $112,000 was taken, or $1,500 per running foot, and the pay not cross-cut, for it frequently runs from vein to vein, being in places 150 feet wide.

"Ground has sold here this spring for over $1,000 a running foot, or at the rate of $500,000 for a claim of 500 feet. Men on whose judgment reliance can be placed and who base their opinion on what their own ground and that of others has yielded, tell me that there are claims here from which over $1,000,000 will come. Last winter men on 'lays' (percentage) left 50-cent dirt because they had better in sight and only a limited time before spring to get out ore. Owing to the large number of the men on 'lays' the production of almost every claim is known, and no overstatement is possible, since so many are interested in the amount of gold produced. As soon as sluicing was fairly under way the price of claims jumped again and but few would sell. It might almost be said that no one would part with a claim on El Dorado.

"On Bonanza, where the pay, except on a few claims, is not as rich as on El Dorado, owners who had looked in vain for the $5, $10 and $150 pans, which were plentiful on the rival creek, were disgusted with their moderate gains and were willing to sell. Thus many claims having 20 to 50 cent dirt and three to seven feet of it were sold. On the boat which takes this letter down the Yukon will be many men, some of them having been in this country only a few months when the strike was made, who will take with them to the mint from $10,000

to $500,000, the result either of working the ground or of selling out.

"The men who sold were paid almost entirely out of their own ground, the men who bought taking the dumps and these, when sluiced, paying for the claims and leaving a handsome margin for the purchasers. In some instances enough gold was rocked out to make a first payment on the claims before sluicing was possible. Many of these men, to my personal knowledge, had neither money nor credit to get 'grub' last fall.

"But those chances are of the past; let no one imagine that they still exist. Claims are held by their owners now up in the hundreds of thousands, and those of less desirable quality are dear in proportion. To get a bargain in a claim is impossible at this stage of the fever here. One might as well stand on State street now and think of getting the Palmer house lot at a low rate, because at some time in the past it was sold for a song. The value of claims is now clearly known. Most of them have passed into second hands, the present owners paying for them in many cases $20,000, $30,000 or $50,000, and holding and working them as straight business propositions.

"That there will be other fields of gold in other creeks is likely, but as El Dorado is one of those strikes that are made only once in about a quarter of a century, it is extremely unlikely that another will be found in this region. As the capacity of the river steamers is limited, and is likely to be taxed to the utmost this year to supply the necessities of those now here, or already coming in, with the rigors of the arctic winter before them, and no provisions, and after September no way of getting out where they may be had, those thinking of coming here, attracted by the marvelous richness of the strike,

cannot be too strongly cautioned against making the attempt this season. They can gain nothing, and may suffer much.

"The Klondike is a stream emptying into the Yukon, eighty miles above the boundary line of Alaska, in the British Northwest territory. It is supposed to be about 125 miles long, heading in the Rockies, and is a rapid river running in a northerly direction. Bonanza creek, coming in one and one-half miles up from the mouth, is twenty-five miles long, and heads at the Dome, a big bold hill, as do a number of lesser creeks. It runs southwesterly. El Dorado comes in twelve miles up, and is seven miles long, running in the same general direction as does Bonanza.

"The pay on Bonanza is good from the 60's below the point of discovery, where one claim has 20 and 25 cent dirt, with the pay 125 feet wide, up to No. 43 above, claim No. 41 being very rich. Gold on Bonanza is finer than that on El Dorado. There is not a blank up to No. 38, and there are some good claims above that number. The richest claims are in the middle of the gulch, the gold there being coarse, with lots of nuggets. This, with the fractions of claims, makes nearly twenty miles of paying ground.

"In addition there are a number of side gulches on which good prospects have been discovered. Bonanza district, it is estimated, is likely to produce not less than $50,000,000 in gold, and this is believed to be an underestimate than otherwise. Hunker creek empties into the Klondike twelve miles up and is twenty miles long. In places $2 and $3 to the pan on bedrock have been found, and the indications are that it will prove a rich-paying creek.

"Gold Bottom, a fork, and Last Chance, a side gulch,

show up equally well for a considerable distance. These comprise, with Bear creek, which comes into the Klondike between Bonanza and Hunker, the extent of territory of which anything certain is known. Quartz creek and Indian creek are reached from the heads of Bonanza and Hunker and they have also some prospects. The country rock is slate and mica schist. Many of the nuggets are full of quartz. Iron rock is found with them, and pieces of stratified rock containing iron are found showing plainly on their sides the matrices of gold nuggets. Some fair gold-bearing quartz has been discovered, but no rich, free gold-bearing rock in place. The mineral belt seems to run northeast and southwest, if one may judge from the creeks, and to be about ten miles wide. It seems to parallel the main range of mountains about 100 miles distant from it.

"There are both summer and winter diggings on all the creeks, as some of the claims are capable of being both drifted and sluiced. Some summer drifting is also done. Wages, owing to the scarcity of men last winter, were $15 a day at the diggings, but they are likely to fall very soon. The price of flour at Dawson City last winter was $1 a pound, and this spring the trading companies advanced their prices in some cases 50 per cent. Canned meats were sold at 75 cents a can.

"Meals were charged for at the rate of $1.50 apiece. Whisky was the same old price—50 cents a drink. Lumber, when it can be had, is $130 a thousand feet. The price for sawing at the mills is $100 a thousand feet, the logs being furnished by the purchaser. Beds or lodgings are not to be had. If you can't find a place in some tent where you may sleep you may try the saloon floors, of which places there are a number. Good river-front lots in the center of the town may be purchased at from

$3,000 to $5,000 each. These same lots sold last fall at $5 apiece.

"The richness and extent of the diggings are such that if they were in any place less inaccessible than this, doubtless the stampede to them would be tremendous, but a great influx of gold-hunters at this time would be a calamity. The Canadian government has sent in another detachment of police and also a judge and a gold commissioner, who, with the customs officer, constitute the governing force. Owing to the impossibility of escape from the country such of the criminal element as has come in thus far is very quiet and peaceable.

"Outside of a little stealing of provisions and similar petty offenses there is no crime. There are but a few places where supplies can be had in all this vast country, and any offender is certain therefore of being caught and punished. Though gold has been sitting around in the cabins for months in lard pails, baking-powder cans, old boot legs and buckets, no thefts have been committed.

"What the country needs above all things is communication with the outside world. If the government at Washington would make some arrangement whereby the Canadians could get a port of entry on the disputed part of the coast it would be a great boon to Alaska as well as to this part of the Northwest territory. Most of the men who 'hit it' are Americans, whose gold will go to San Francisco and the United States. Because of the lack of adequate communication with the civilized world the miners are in constant fear lest supplies should give out.

"Many articles can be had but for a limited time after the arrival of a steamer, and those who are not fortunate enough to get a supply at that time must do without for

weeks and months, no matter how much gold they may have to make purchases with. The scarcity may be one of provisions, window sashes or gum boots, but always there is a scarcity here of some important article.

"Generally there is never enough of anything, and only the opening up of communication with the coast by some other route than the mouth of the Yukon offers any prospect of adequate relief. If the Canadians had a port of entry they would have commerce coming down the river from the direction of Juneau, and the country would not be dependent upon the scanty supplies coming 1,900 miles up the Yukon from Bering sea."

Since this letter was written reports from Dawson City indicate that the "rush" to the gold diggings has glutted the labor market and day labor is quoted at low figures. It is reported that wages range from $2 to $3 a day.

One of the "most meaty" letters that have come from the Yukon was written by Arthur Perry, a well-known and reliable Seattle man, who is now at Dawson City. It is dated Dawson City, June 18, and reads in full as follows:

"The first discovery of gold on the Klondike was made the middle of August, 1896, by George Carmack on a creek emptying into the Klondike from the south, called by the Indians Bonanza. He found $1.60 to the pan on a high rim, and after making the find known at Forty Mile went back with two Indians and took out $1,400 in three weeks with three sluice boxes. The creek was soon staked from one end to the other and all the small gulches were also staked and recorded. About Sept. 10 a man of the name of Whipple prospected a creek emptying into Bonanza on No. 7, above discovery, and named it Whipple creek. He shortly afterwards sold out and the

miners renamed it El Dorado. Prospects as high as $4 to the pan were found early in the fall. Many of the old miners from Forty Mile went there and would not stake, saying the willows did not lean the right way and the water did not taste right, and that it was a moose pasture, it being wide and flat. Both creeks were staked principally by 'chechacoes' (new men in the country), and early as they could get provisions, about 250 men went there and commenced prospecting by sinking holes to the depth of from 9 to 24 feet, doing so by burning down, as the ground was frozen solid to bed rock. Nov 23 a man of the name of Louis Rhodes located on No. 21, above on Bonanza, got as high as $65.30 to the pan.

"This was the first big pan of any importance, and the news spread up and down the creek like wildfire. This news reached Circle City, 300 miles farther down the Yukon river, but nobody would believe it. Soon after large pans were found on both Bonanza and El Dorado, and each creek was trying to outrival the other, until a man of the name of Clarence Berry got $100 to the pan. From that time on El Dorado held a high position. Many claims from the mouth up for a distance of three miles got large pans—until they reached as high as $280.

"About March 15, 1897, I reached the diggings from Circle City, having hauled my sled the whole distance without a dog. The importance of the new strike had become too significant to be overlooked, and about 300 men from Circle City undertook the journey in midwinter. Such an exodus was never known before in the history of the Yukon, but not a man lost his life, although several had their faces and toes nipped at times. Even some of the most resolute and dissolute women made the journey in safety. Fancy prices were paid for dogs by those who were able to purchase, and as high as $175 and

even $200 were paid for good dogs. Almost any kind of a dog was worth $50 and $75 each.

"When I first reached the new camp I was invited by the butcher boys—Murph Thorp of Juneau and George Stewart from Stuck Valley, Wash.—to go down in their shaft and pick a pan of dirt, as they had just struck the rich streak. To my surprise it was $282.50. In fourteen pans of dirt they took out $1,565 right in the bottom of the shaft, which was 4 by 8 feet.

"March 20 Clarence Berry took out over $300 to the pan. Jimmy MacLanie took out over $200 to the pan; Frank Phiscater took out $135 to the pan. The four boys from Nanaimo took as high as $125 to the pan. They were the first men to get a hole down to bedrock on El Dorado and found good pay. They had Nos. 14 and 15.

"In fact, big pans were being taken on nearly every claim on the creek, until $100 and $200 pans were common. April 13 Clarence Berry took in one pan 39 ounces —$495—and in two days panned out over $1,200. April 14 we heard some boys on No. 30 El Dorado had struck it rich and taken out $800 in one pan. This was the banner pan of the creek, and Charles Myers, who had the ground on a lay, told me that if he had wanted to pick the dirt he could have taken 100 ounces just as easy.

"Jimmy MacLanie took out $11,000 during the winter just in prospecting the dirt. Clarence Berry and his partner, Anton Strander, panned out about the same in the same manner. Mrs. Berry used to go down to the dumps every day and get dirt and carry it to the shanty and pan it herself. She has over $6,000 taken out in that manner.

"Mr. Lippy, from Seattle, has a rich claim and his wife has a sack of nuggets alone of $6,000 that she has picked

PLACER GOLD CLAIM ON MILLER'S CREEK, YUKON DISTRICT, ALASKA.

up on the dumps. When the dumps were washed in the spring the dirt yielded better than was expected. Four boys on a lay, No. 2 El Dorado, took out $49,000 in two months. Frank Phiscater, who owned the ground and had some men hired, cleaned up $94,000 for the winter. Mr. Lippy, so I am told, has cleaned up for the winter $54,000. Louis Rhodes, No. 21 Bonanza, has cleaned up $40,000. Clarence Berry and Anton Strander have cleaned up $130,000 for the winter.

"Enclosed are the names of some of the boys who are going out on this boat, with the approximate amounts:

Ben Wall, Swede, Tacoma	$50,000
William Carlson, Swede, Tacoma	50,000
Wm. Sloan, Englishman, Nanaimo	50,000
John Wilkerson, English, Nanaimo	50,000
Jim Clemens, American, California	50,000
Frank Keller, American, California	35,000
Sam Collej, Icelander	25,000
Stewart and Hollenshead, California	45,000
Charles Myers and partner, Arizona	22,000
Johnny Marks, Englishman	10,000
Alex Orr, Englishman	10,000
Fred Price, American, Seattle	15,000
Fred Latisceura, Frenchman	10,000
Tim Bell, American	31,000
William Hayes, Irish-American	35,000
Dick McNulty, Irish-American	20,000
Jake Halterman, American	14,000
Johnson and Olson, Swedes	20,000
Neil McArthur, Scotchman	50,000
Charles Anderson, Swede	25,000
Joe Morris, Canadian	15,000
Hank Peterson, Swede	12,000

"There are a great many more going out with from $3,000 to $10,000 that I do not know. This is probably the richest placer ever known in the world. They took it

out so fast and so much of it that they did not have time to weigh it with gold scales. They took steelyards and all the syrup cans were filled. It looks as if my time would come about the time I am ready to die.

"One man received word that his wife and little girl had died since he came in here, and now he is going out with $25,000.

"Another man was here waiting for the boat to go home, and died yesterday with heart disease, having in his possession $17,000. Stranger things than fiction happen here every day."

CHAPTER X.

PAN VALUES OF PAYING CLAIMS.

CORROBORATIVE evidence, which has come in since the steamer "Enterprise" brought back the first of the men who had "struck it rich" in the Klondike, shows that their reports were not exaggerated. The "Alaska Miner," of July 17, contains a long article on the Klondike placers, in which the results are compared with an analysis made last March of the pan value of the two richest creeks, Bonanza and El Dorado. This analysis was based on talks with several men who had spent most of the winter on the creek, and saw panning being done on various claims. The Alaska Miner is regarded as high authority on gold in Alaska and the Yukon district. The article, which shows the extraordinary richness of the placer mines in the Klondike district, reads as follows:

"We expressed the opinion that the El Dorado would prove to be the richer creek, and our surmises have proved to be correct. How did we arrive at this result? We carefully kept a record of the panning results on both creeks, and the average at that time was as follows: On El Dorado creek No. 3, $3; No. 4, $4.60; No. 5, $8.50; No. 6, as high as $153; No. 7, about the average of No. 6. No. 8, as high as $60; from No. 8 to No. 16, from $2.50 to $10 on an average, although $216 was washed out of one pan on the latter claim. From No. 16 to No. 37 all the claims were regarded

as good, but not enough panning had been done to justify forming any opinion of the average value. Upon No. 37 a nugget worth $360 of irregular shape was found. From No. 37 to rim rock there had not been sufficient prospecting done, but the opinion then was that all the claims were good.

"Even as far back as last March the best developed claim in the country was that of Clarence Berry, No. 6 on El Dorado, in which he then owned a half interest. He also owned one-third interest in Nos. 4 and 5. He employed twelve men all the winter taking out pay dirt and depositing it upon the dump. To give an idea of the richness of the claim we cannot do better than say that Berry paid his men $1.25 an hour until someone offered more, and that every night he melted ice in his cabin and panned out sufficient gold from the frozen dirt to pay the wages of his men.

"Berry knew where there was very rich ground on his claim and he very often panned out from $10 to $50 to the pan. When requiring money it was only necessary for the owner of the claim to take out some of his rich ground and wash it. We have had all kinds of estimates of the amount which Berry's dump would produce, and the highest we heard was $100,000, so that in announcing the result as $140,000 it goes to show what a rich country has been discovered.

"We gave figures in the winter which showed that the lower portion of Bonanza creek averaged all the way from $10 to $50 to the pan, up to No. 56 below discovery. From discovery to No. 12 above, the value was from $5 to $40. Then from there to No. 25 the average was from $40 to $10. From No. 25 to No. 53 the average is from $10 to 50 cents. From this point up the creek there has

not been enough prospecting done on which to base any average.

"We hope soon to be in a position to give the results from the various claims on Bonanza which may be depended upon and we can then compare them with the panning average of early in the summer as given above. We know that Rhodes has taken out probably $150,000 from his claim, but then it was well developed and we are expecting big results from there, but we want to get the information from a number of claims, so as to get the right idea of the general value of the creek, and prove the assertion so often made of its continued richness from end to end.

"One thing has been learned in the Klondike, and that is that production is proportionate to development. We have found that the yield of gold follows the work done on a claim. When Rhodes made such a good showing on the start it encouraged others to open up their claims, and quite a number changed hands at Bonanza creek and the owners left there for the coast to obtain sufficient supplies to last them for a long period. Then came the big returns from No. 6 on El Dorado, and the great excitement was transferred to that creek, and there were fewer absentee owners and in consequence more work was done, the evidence of which we have had ample demonstration of in the big sacks of gold which have been washed out.

"The largest results attract the most attention, therefore most of the stories which have reached the coast cluster around the few big producers, and of the sales made only those involving large sums are spoken of. There are a great many smaller sums than the ones spoken of which have been taken from El Dorado. But properties which in any other country on the face of the

earth would attract universal attention are almost lost sight of in the Klondike, because they have only yielded $10,000, $15,000 and $20,000. Next fall these same claims will be so far developed as to hold their own with the rest of the creek. Berry had a good start, and after reaching bed rock could command sufficient funds to hire men and pay them wages equal to the production of an ordinary placer mine. We have no particular reason to assume that other claims will prove less productive than his when they have had the same amount of labor expended upon them. Several men from Seattle went in with the first party this spring, and they are interested on Bonanza creek and intend to prosecute work with all the men they can profitably employ.

"If a comparatively few men in the limited time at their disposal are able to produce a million dollars from dirt raised to the surface during the winter months with practically no preparation at all, what will be the result when all the claims are being vigorously developed with plenty of labor to draw from? This is a very important question, and is one fraught with considerable interest to the great number of men now on their way to the mines. If we think a moment that there has not yet been a barren claim on either of the creeks the possibilities of the future are tremendous. Let us make this a little clearer. The panning in the winter gave promise of exceedingly rich results. These rich results have been attained in every instance where the claim has been worked. We have therefore the right to assume that similar results will reward the efforts of the owners of other claims on the same creeks which have been so productive this season.

"The only evidence one had of the probable value of a claim was the amount of gold obtained in a single

pan. Suppose we follow this idea out for a moment. No. 6 on El Dorado creek panned out as high as $153 to the pan last winter before work was done on it. This is the claim which produced $140,000 from the winter dump. Now, then, No. 7, next to it, yielded precisely the same results to the pan. Why will not No. 7, when it is opened up as much as No. 6 has been, give the same results? There is simply no answer to the query. Then, again, the next claim, No. 8, panned out as high as $60 to the pan. The same argument applies to this. The average of the panning from No. 8 to No. 16 is from $2.50 to $10 to the pan. This would make any of these claims from No. 7 to No. 16 produce as much gold as No. 6 did with the same amount of labor expended on them. What would this mean?

"As a simple question of mathematics it would mean several million dollars alone for these few claims. This takes no account of claims No. 17 to No. 37, all of which are reported to be rich, but little work has been done upon them so far.

"When all the claims are in working order and producing gold in proportion to their development, we shall see a state of things at the Klondike unprecedented in the world's history. The man who took $90,000 from 45 feet of his ground last winter and has 450 feet left yet, and so far as he knows, of the same average value, can, by putting enough men to work, clean up half a million next season. If this be true, then there are others who have panned out from $5 to $40 in prospecting who have every reason to think that their claims will yield in like manner.

"We noticed as men went through here this spring that there were large numbers who expect to hire out, and thus obtain a stake so that they may in turn spend some time in prospecting with an equal chance of dis-

covering something good for themselves. Their place will be taken by other arrivals, and the work of securing the gold will go on and much country will be examined by men who will be encouraged and stimulated by the success of others. A man who can afford to hire men and pay them $12 a day, will get the advantage of a quick return. These diggings are essentially winter ones. Upon a claim of 500 feet a large number of prospect holes can be sunk at the same time, and the pay dirt deposited on the dump, and next spring the owner of the claim will be in a position to realize enormous amounts of money from his property.

"The Klondike diggings may be regarded as permanent to the extent of several million dollars, and we have no hesitation in recommending men with some means to go and try their fortunes in the gold-lined creeks of the far north, where endurance, perseverance, grit and a good outfit will be their best friends."

Following are some of the men who "struck it rich" in the Klondike, most of the claims located on Bonanza and El Dorado creeks:

Clarence Berry and Anton Strander	$130,000
James McLanie	11,000
Frank Phiscater	94,000
Four men on No. 2 El Dorado	49,000
Louis Rhodes	40,000
Thomas Cross	10,000
Ben Wall	50,000
William Carlson	50,000
William Sloan	50,000
John Wilkerson	50,000
James Clemens	50,000
Frank Keller	35,000
Samuel Cellej	25,000
Charles Myers and partner	22,000
John Marks	10,000

Fred Latisceura	10,000
Timothy Bell	31,000
William Hayes	35,000
Richard McNulty	20,000
Jacob Halterman	14,000
Johnson and Olson	20,000
Charles Anderson	25,000
Joseph Morris	15,000
Henry Peterson	12,000
Henry Dore	50,000
Victor Lord	15,000
William Stanley	112,000
James McMahon	15,000
Jacob Horne	6,000
J. J. Kelly	10,000
T. S. Lippy	65,000
F. G. H. Bowker	90,000
J. La Due	10,000
J. B. Hollingshead	25,000
William Kulju	17,000
Albert Galbraith	15,000
Neil McArthur	15,000
Douglas McArthur	15,000
Bernard Anderson	14,000
Robert Krook	14,000
Fred Lendesser	13,000
Alexander Orr	11,500
Thomas Cook	10,000
M. D. Norcross	10,000
J. Emmerger	10,000
Con Stamatin	8,250
Albert Fox	5,100
Greg Stewart	5,000
J. O. Hestwood	5,000
Thomas Flock	6,000
Louis B. Rhodes	5,000
Fred Price	5,000
Alaska Commercial company	250,000

Gov. H. C. McIntosh, of the Northwest territory, comprising the Canadian Yukon, estimates that the Klon-

dike district will yield $10,000,000 during 1897. Gov. McIntosh, in speaking of the Klondike find, said:

"We are only on the threshold of the greatest discovery ever made. Gold has been piling up in all these innumerable streams for hundreds of years. Much of the territory the foot of man has never trod. It would hardly be possible for one to exaggerate the richness, not only of the Klondike, but of other districts in the Canadian Yukon. At the same time the folly of thousands rushing in there without proper means of subsistence and in utter ignorance of geographical conditions of the country should be kept ever in mind.

"There are fully 9,000 miles of these golden waterways in the region of the Yukon. Rivers, creeks and streams of every size and description are all rich in gold. I derived this knowledge from many old Hudson Bay explorers, who assured me that they considered the gold next to inexhaustible.

"In 1894 I made a report to Sir John Thompson, then premier of Canada, who died the same year at Windsor castle, strongly urging that a body of Canadian police be established on the river to maintain order. This was done in 1895, and the British outpost of Fort Cudahy was founded.

"I have known gold to exist there since 1889, consequent upon a report made to me by W. Ogilvie, the government explorer. Many streams that will no doubt prove to be as rich as the Klondike have not been explored or prospected. Among these I might mention Dominion creek, Hootalinqua river, Stewart river, Liard river and a score of other streams comparatively unknown.

"It is my judgment and opinion that the 1897 yield of the Canadian Yukon will exceed $10,000,000 in gold. Of course, as in the case of the Cariboo and Cassiar districts

years ago, it will be impossible accurately to estimate the full amount taken out.

"There is now far in excess of $1,000,000 remaining already mined on the Klondike. It is in valises, tin cans and lying loose in saloons, but just as sacredly guarded there and apparently as safe as if it were in a vault. Already this spring we have official knowledge of over $2,000,000 in gold having been taken from the Klondike camps. It was shipped out on the steamships Excelsior and Portland.

"Incidentally I may say we have data of an official nature which lead us to believe that the gold output of the Rossland and Kootenai districts for 1897 will be in excess of $7,000,000. I should have said, and I have no hesitancy in asserting, that within the course of five years the gold yield of the three districts named will exceed that of either Colorado, California or South Africa."

CHAPTER XI.

DANGERS OF THE CHILKOOT PASS.

ENDURANCE, nerve and perseverance are required of the adventurer who sets out to make his fortune in the El Dorado of the north. Henry De Windt, the famous correspondent, was a companion of Omer Maris in the journey through Chilkoot pass. His letter to the London Times shows two sides of the picture, and is a valuable contribution to the literature of the Klondike. Part of his letter follows:

"The Chilkoot pass is difficult, even dangerous, to those not possessed of steady nerves. Toward the summit there is a sheer ascent of 1,000 feet, where a slip would certainly be fatal. At this point a dense mist overtook us, but we reached Lake Lindeman—the first of a series of five lakes—in safety, after a fatiguing tramp of fourteen consecutive hours through half-melted snow. Here we had to build our own boat, first felling the timber for the purpose. The journey down the lakes occupied ten days, four of which were passed in camp on Lake Bennett during a violent storm, which raised a heavy sea. The rapids followed. One of these latter, the 'Grand Canyon,' is a mile long, and dashes through walls of rock from 50 to 100 feet high; six miles below are the 'White Horse rapids,' a name which many fatal accidents have converted into the 'Miner's Grave.' But snags and rocks are everywhere a fruitful source of danger on this river, and from this rapid downward scarcely

a day passed that one did not see some cairn or wooden cross marking the last resting-place of some drowned pilgrim to the land of gold.

"The journey to the Alaskan gold fields is a hard one for the well-equipped explorer, who travels in light marching order. The gold prospector, on the other hand, must carry a winter's supplies, dearly purchased at Juneau, to be transported at ruinous prices over the Chilkoot pass. He must construct his own boat (often single-handed) on Lake Lindeman, and assuming that he arrives at his destination must secure lodgings at a price that would startle a West End landlord. And all this on, perhaps, a capital of $1,000, not including a ticket to Juneau from the Golden Gate or elsewhere. No wonder that the annals of the Alaska Commercial company bear witness to the fact that within the last five years hundreds of starving miners have been sent out of the country at the company's expense, and these, as I can testify, are but a percentage of those who have perished from actual starvation in the dreary purlieus of Circle City and Forty Mile creek.

"There is, however, a brighter side to this gloomy picture, for there are fortunately other approaches to the Yukon valley besides the dreaded Chilkoot. The chain of mountains of which the latter forms a part is cut by three other passes—the Takou, the Chilkat and the White pass. Of these, the two former may be dismissed as being, on account of their length and other difficulties, almost as impracticable as the Chilkoot, over which it would be quite impossible to lay a bridle path; but the White pass offers no serious obstacles to the construction of a railway. The White pass is at least 1,000 feet lower than the Chilkoot, and, unlike the latter, is timbered the entire length. The salt-water terminus of this pass is

in Skagway bay, eighty-five miles from Juneau. Here ocean steamers can run up at all times to a wharf which has been constructed in a sheltered position, and there is an excellent town site with protection from storms.

"The pass lies through a box canyon surrounded by high granite peaks, and is comparatively easy. It has already been used by miners who report favorably upon the trail, and when it is considered that the adoption of this route obviates the dangers and expenses of the Chilkoot, avoids Lakes Lindeman and Bennett (the stormiest and most perilous of the whole chain), shortens and greatly diminishes the expense of the journey to the Yukon valley, and, above all, can be used throughout the year (the interior of Alaska is now completely cut off from the world for nine months in the year), there can be little reasonable doubt that the White pass is the best and most practicable route to the Yukon gold fields.

"It is said that a scheme is now in progress to open up the White pass and facilitate the transport of miners and stores to the mining settlements, and this is earnestly to be wished for. An English company, the British Columbia development association, limited, has already established a landing wharf, and is erecting a wharf and sawmills at Skagway, whence it is proposed (as soon as feasible) to lay down a line of rail some thirty-five miles long, striking the Yukon river at a branch of the Teslin lake, about 100 miles below Lake Lindeman, which is the débouchure of the Chilkoot pass. By this means the tedious and difficult navigation between these two points will be avoided, and the only dangerous parts of the river below, viz.: the Grand Canyon and White Horse rapids, will be circumvented by a road or rail portage. Light-draught steamers will be put on from Teslin lake to the canyon, and from the foot of the latter to all the towns and camps

A HALT IN CHILKOOT PASS.

on the river. Arrangements will also be made for direct communication with Skagway by the existing lines of steamers, which now only call at Juneau, whence transshipment is necessary.

"It is stated that this route will be open for use and traffic in a few months' time, when the cost of transporting freight and passengers will be very considerably reduced and the difficulties of transit practically eliminated. Much, however, depends upon the Canadian government, which, in view of the increasing rush of miners to the Yukon valley (many of whom must, under existing conditions, inevitably starve during the coming winter), should lose no time in constructing a wagon road over the White pass.

"When the above scheme has been carried out the prospector (even of limited means) may reasonably hope to reach his claim in safety and at a comparatively moderate outlay. At present I should certainly recommend all those intending to try their luck in Alaska to defer their journey until a less hazardous route than that via the Chilkoot pass is open to them. It is with the object of warning Englishmen who may be deceived by the alluring advertisements of unscrupulous agents that I have addressed you this letter. That there is gold in large quantities on the Yukon has been conclusively proved, but the wealth of the Indies would not compensate the risks now attendant on the journey. As an old Yukon miner remarked to me at Juneau: 'One thousand dollars a day would not fetch me over the Chilkoot again, but open up the White pass and we will soon have another Johannesburg at Forty Mile creek.'"

"Jack" Carr, the Yukon mail carrier, in answer to the hundreds of inquiries received by him from people all over the country, wrote as follows:

"No one should think of leaving Seattle for the Klondike later than September 1, and even at that date he would require to have his whole outfit packed over the mountain. From Dyea to Lake Lindeman, or from Skagway to Windy Arm, the two passes now used, the round trip requires three days, and it takes a good, husky man to pack 100 pounds over either route. As the necessary outfit for a man will weigh fully 1,000 pounds, you can easily see that it would take him thirty-six days to pack his outfit unaided over either of the passes alone.

"The distance from Dyea over the Chilkoot pass to the head of Lindeman is twenty-four miles. From Skagway to the head of Windy Arm, over the White pass, the distance is thirty-one miles. A horse cannot go the full distance over the Chilkoot pass, but the White pass is passable for a horse the entire distance. According to the latest information I have, George Rice will have about forty-five pack horses on the White trail.

"Now, anybody who thinks of leaving for the Klondike late in the season should be warned of the great peril he will encounter. If he should be frozen in at any point between the pass and Dawson he would be there till spring. I can easily demonstrate just how that would be. He has with him 1,000 pounds of dead weight. To move this in winter is almost impossible. The snow is dry and frosty, and a sleigh pulls very hard over it. The best a man could hope to do would be to haul 200 pounds, and with this he could make about fifteen miles a day. Say he starts from a given point, takes 200 pounds of his freight for seven and a half miles, and then comes back after his other stuff, thus making his round trip for the day fifteen miles. You can see that it would take him five days to make seven and a half miles. The total dis-

tance from Dyea or Skagway to Dawson City is 578 miles.

"If a person should have the misfortune to be frozen in, my advice to him is to go ashore at once, build a small cabin, and prospect any small creeks in the vicinity. This, of course, is on the supposition that he is not alone, but is a member of a party of several.

"Of course, a man should bear in mind that, as to the river itself, it never freezes over smooth. The ice forms in great rough masses, which render travel impossible. The river freezes up by October 15."

CHAPTER XII.

THE "BACK DOOR" ROUTE.

THE "BACK DOOR" route to the Klondike country is the highway of the Hudson's Bay company. The Mackenzie river stretches its length of 1,450 miles most of the distance, and gold-seekers can float on its waters to one of the several rivers which offer ways to reach the western slope of the divide, far up under the Arctic circle.

It is interesting to note that the "back door" route to the Klondike follows the first continental route across North America. This way was discovered by Mackenzie in 1785, when he paddled his canoe from Great Slave lake down the river which bears his name to the Arctic ocean, which Mackenzie supposed was the Pacific ocean. The next year after making the same trip, he went up the Peace river and crossed over the divide to the western slope, which now is Alaska, thence to Bering sea.

The Northwest territory includes the basins of the Athabasca, Mackenzie and Great Fish rivers. The first exploration, purely geographical in character, in this district was made by Samuel Hearne, who was sent in 1770 by the Hudson's Bay company northward in the direction of the Arctic waters. He reached the Arctic ocean and wrote an account of his journey, but this important document was held by the Hudson's Bay company for 20 years before it was published. A Canadian family of the name of Beaulieu founded a settlement north of Lake Athabasca, and in 1778 a fort was erected there.

Next an Englishman, named Pond, guided by these half-castes, advanced as far as the Great Slave lake, and 7 years later Mackenzie entered upon his explorations. After Mackenzie's expedition no voyage of discovery was undertaken until 1820, when Sir John Franklin explored the Northwest territories between Lake Winnipeg and the Arctic ocean. After this the trappers and half-breeds in the employ of the Northwest Hudson's Bay company traveled all over the Northwest territories.

The gold-seeker who takes the "back door" route to the Klondike fields will travel through a country which has been placed in song and story by those who sang and wrote of the deeds done by the trappers, voyageurs and other adventurers in the employ of the fur companies. The route (described in preceding pages of this book) starts from Edmonton, which is a terminal of a spur of the Canadian Pacific railroad from Calgary on the main line, and is 1,772 miles from Chicago. For the first forty miles toward the placer mines of the Klondike the gold-seeker will travel over a well made stage road to Athabasca landing, and here he will strike the waters which, eventually, will find their way into the Arctic ocean.

The Athabasca river, which is the main upper branch of the Mackenzie, has its remotest southern source in the little lake, on the east side of Mt. Brown in the Rocky mountains, which passes under the name of the "Committee's punch bowl." That is one of its names, for in common with all the other lakes and rivers and streams in the Northwest territory, it has anywhere from 2 to 7 names, as every watercourse has been named by English and Canadian trappers and the Indian tribes that are local to the vicinity. The term Athabasca is not often used. The Canadians calling it the "Biche." On some English

maps it passes under the name of "Elk river." The Athabasca receives the drainage of the lesser Slave lake as well as the overflow of several other lakes from the west. At the foot of Bark mountain the Athabasca runs over the "Great rapids," which is an inclined plane about 60 miles long, unbroken by any falls or cataracts, and only occasionally is the water ruffled by rocks projecting above the surface.

The Athabasca enters Lake Athabasca 550 miles from its source. At present the alluvial delta extends towards the northwest about 30 miles, having many channels which change their direction and size with every inundation. Athabasca lake stands about 500 feet above the sea level. It is in the form of a crescent, with the convex side facing north, the shores are very irregular and have many deep inlets. The lake receives its chief tributary from the west, and here also is the outlet, so that the delta is common to both the affluent and effluent. The Athabasca and Peace rivers uniting form the Great Slave river, which is a very large stream, but its passage through the Caribou hills is so obstructed by rapids that boatmen have to make 7 portages between the Dog river from the east and the Salt river from the west.

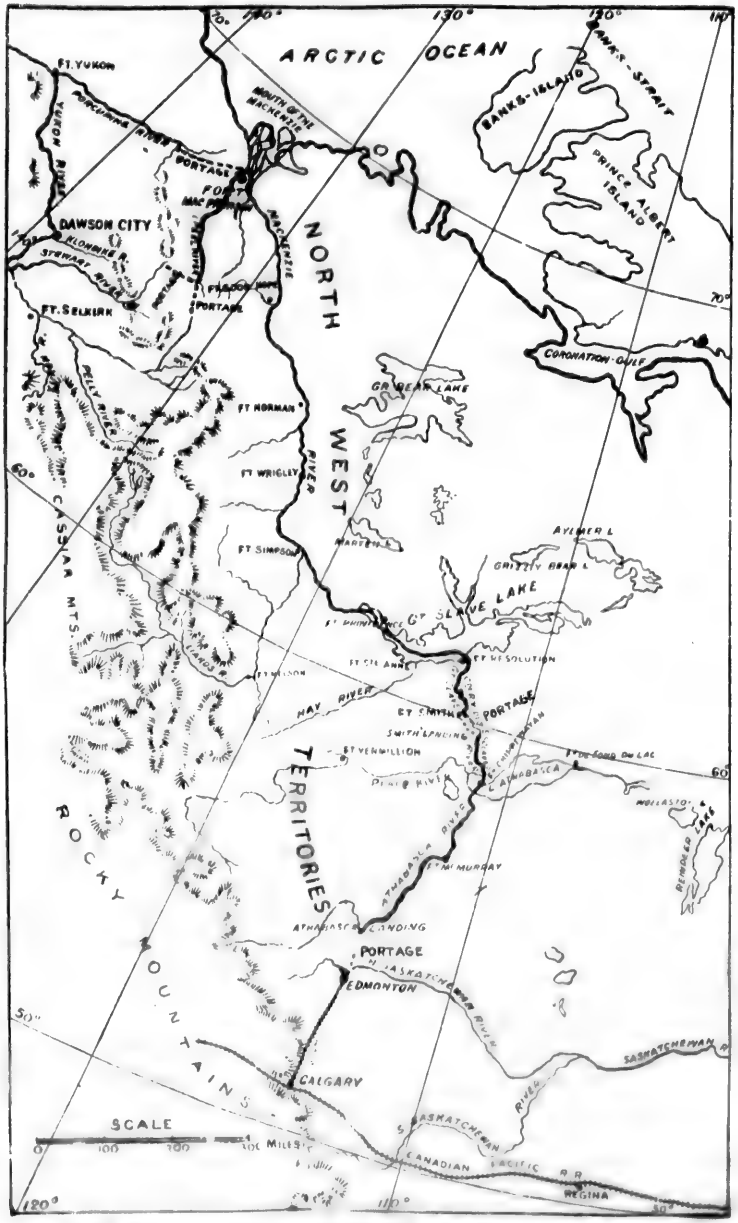
Below these rapids the true Mackenzie, or the "Great" river, as the natives call it, begins its 1,450 miles journey to the Arctic ocean. Up to the Great Slave lake into which it empties it passes between wooded hills. The Great Slave lake is one of the largest in North America; it is not less than 300 miles long, 60 miles at its widest part and has an area of about 10,000 square miles. In the west it is shallow, but its eastern end is bordered by steep cliffs and high bluffs and the waters there, it is said, are 650 feet deep. The 63d parallel crosses the northern waters of Great Slave lake. The Mackenzie escapes from

the lake at the northwest. It first widens into basins that are almost stagnant, and then its banks come together, and the river bed falls rapidly to where the Liard comes in from the south.

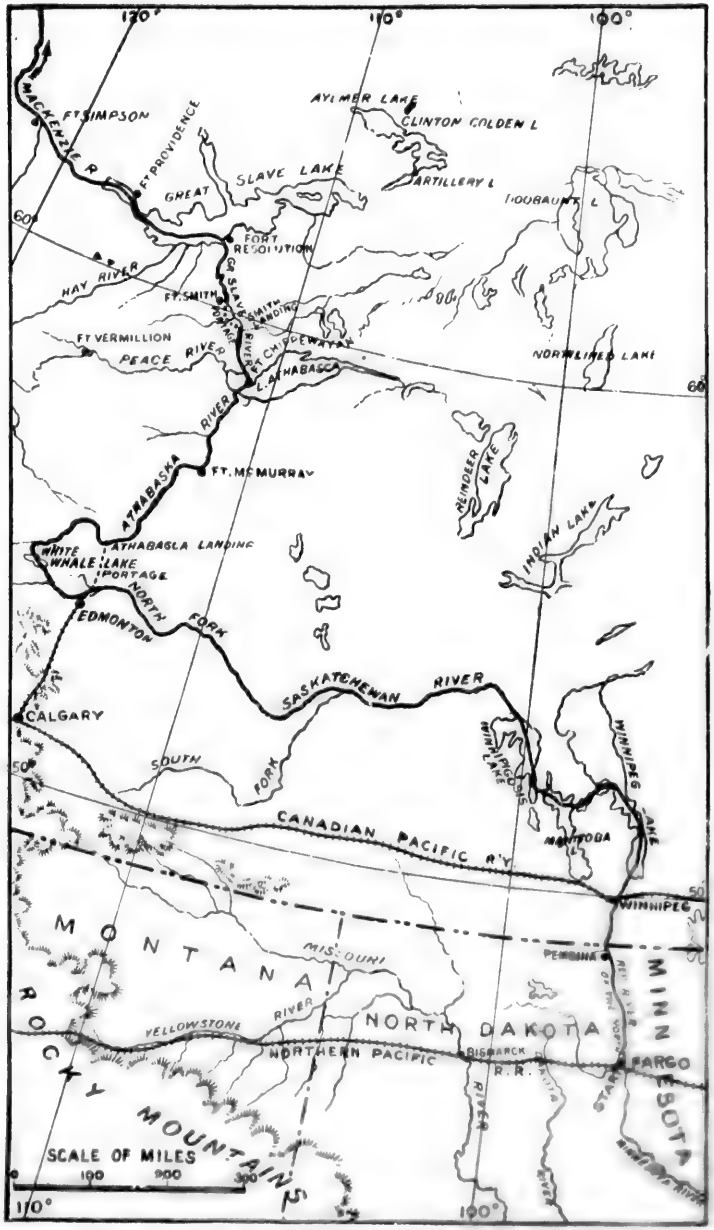
Below the confluence of the Liard the Mackenzie maintains a width of 2,000 yards; at many points the banks are 4 to 5 miles apart. Several rapids occur, of which but one, the Sans-Saut, offer any dangers to navigation. The delta of the Mackenzie extends north and south a distance of 90 miles, with an area of 4,000 square miles. This delta, however, is common also to the Peel or Plumee river, which comes in from the west.

The Athabasca-Mackenzie river, which has a total length of nearly 2,700 miles, has a basin of at least 460,000 square miles, has been used regularly for the transport of provisions and merchandise since 1887. Steamers from Lake Winnipeg ascend the Saskatchewan river to a large rapid, which is evaded by a short railroad, beyond which navigation again is resumed. A wagon road 100 miles long runs to the Athabasca river, which is descended by steamers and flat-bottomed boats, according to the nature of the waters, to Fort Smith, on the Great Slave river. At this point is a portage 12 miles long. Beyond the portage steamers which draw 5 feet regularly ply on the Mackenzie to its estuary, as well as on the Peace and Liard rivers, and on Lake Dease. This gives the united Saskatchewan and Athabasca-Mackenzie basins a waterway of 7,500 miles, almost every mile of which is navigable, and beyond which navigation can be continued along the Arctic seaboard to Bering strait for three months in the year.

The forts and settlements along the Athabasca-Mackenzie route have acquired a certain celebrity in connection with the stories of adventure and tales of romance



BACK DOOR ROUTE VIA ATHABASCA AND MACKENZIE RIVERS.



BACK DOOR ROUTE VIA SASKATCHEWAN AND MACKENZIE RIVERS.

which are connected with the names of Mackenzie, Franklin, Back, Richardson and other noted explorers. Fort McMurray stands at the confluence of the Athabasca and Clearwater rivers at the famous La Loche portage, which has been the main route of Canadian travelers and trappers for a century.

Fort Chippewayan stands at the western extremity of Lake Athabasca. The shiftings of the alluvial delta have compelled the trappers to move Fort Chippewayan several times. Fort Smith is at the end of the portage from Smith's landing, between Lake Athabasca and Great Slave lake, and beyond are Fort Resolution and Fort Providence, on the Great Slave lake, all of them famous in connection with Sir John Franklin's expedition, just as Fort Reliance has acquired fame because of its association with the exploits and adventures of Back. Fort Reliance, however, has been abandoned.

In the region between the Great Slave and Great Bear lakes is Fort Simpson, the chief station, which stands at the junction of the Liard and Mackenzie rivers, commanding also the route from the sources of the Stikeen river to South Alaska. Fort Wrigley is the next station above Fort Simpson, then comes Fort Norman, which stands at the juncture of the Mackenzie and the Hareskin rivers; still further north is Fort Good Hope, and then comes Fort McPherson, the most northern of the posts, which stands at the junction of the Peel and the Mackenzie rivers, and which has been maintained in a state of defense since 1848.

The gold-seeker must be prepared to stand cold weather as well as hot weather on this "back door" route, depending on the time of the year he makes the trip. The Hudson's Bay company trappers traverse this whole district from one end of the year to the other. Snow seldom

falls during intensely cold weather. At Fort Chippewayan, which is in 58 degrees 43 minutes north latitude, the mean temperature is 27 degrees Fahr.; extreme of cold, 49 degrees below zero; extreme of heat, 86 degrees above zero. At Fort Good Hope, which is 66 degrees 20 minutes north latitude, the thermometer sinks 62 degrees below zero, and for six months, that is from October 17 to April 24, the average temperature at Fort Confidence, which is in practically the same latitude as Fort Good Hope, is 14 degrees below zero.

At Fort Simpson, which is 62 degrees north latitude, a boat is loaded every year with potatoes grown there to supply the station of Fort Good Hope on the Lower Mackenzie; at Fort Simpson also barley is in the ear 75 days after being sown, although the ground is permanently frozen for a depth of at least 7 feet 10 to 12 feet below the surface. Snow, however, is seldom more than 3 feet deep in winter, and horses pass the season there in the open.

The half-caste trappers in the service of the Hudson's Bay company are noted the world over for their physical strength, their skill, indifference to cold and hardships, and coolness in the presence of danger. In all probability the rush of the gold-seekers next spring will tear down, in a good measure, the veil of romance and mystery which has hidden this land from the outside world for so many years. It might be of service to the men who intend to take the "back door" route to know that the principal food of the trappers and Indians of the Northwest country is pemmican, "jerked beef," which, it is said, contains more nutritious elements, bulk for bulk, than any similar preparation. The normal ration of pemmican for one day for one man is but two and a half pounds; that seems to satisfy even the Indians. Pemmi-

can is made from the round of beef, cut in strips and dried, and then shredded or mixed with beef tallow and raisins.

Craft W. Higgins of Chicago, one of the promoters of the British Pacific railway, which is intended to open up and develop the rich Caribou gold country, and who was all through British Columbia and the Northwest territory in 1892-3, and afterward made a trip to the Yukon, is one authority for the statement that the back door route was not only the most practicable, but the most feasible of the overland routes; entailed less hardships than that through the Chilkoot pass, did not take near so long a time as the other routes, and that transportation of supplies was much easier. Mr. Higgins said:

"The jumping-off place is at Edmonton, 1,772 miles from Chicago, on the Canadian Pacific railway. A stage line runs from there to Athabasca landing, on the Athabasca river, and the Canadian Pacific intends to extend its line north from Edmonton to that point. At Edmonton the Canadian Pacific owns very large coal mines. From Athabasca landing you can take a canoe and go down with the current to Athabasca lake, and then into Great Slave lake, through which runs the Mackenzie river, by which you reach the Arctic ocean. When the mouth of the Mackenzie is reached the Peel river can be taken south to the Rocky mountains, which are crossed by trail. When across the range the Stewart river opens the way to the near-by Klondike regions.

"From Edmonton to the mouth of the Mackenzie the distance is 1,882 miles, as given by the Hudson's Bay company, which has a number of trading posts, well stocked with provisions and supplies of all kinds, at short intervals along the route, as it has been using this trail for the last 100 years. The portages are all short, with the exception of one at

Smith's landing of about sixteen miles, but this is very easy to make. One can take the splendid tramway which the Hudson's Bay company has built. None of the other portages is more than a few hundred yards in length. The trip is down grade all the way, and wherever there is water of any depth at all small freight steamers are continually plying back and forth. The trip can be made from Edmonton to the mouth of the Mackenzie in less than 60 days, but if Peel river is frozen, dog trains will have to be taken from there to the Klondike; but even with those the disadvantages and hardships will not be half those to be overcome in going by way of Dyea. One great advantage of this route is that it is an organized line of travel, and the numerous posts of the Hudson's Bay company can furnish prospectors with ample supplies, enabling them to travel very light, as only sufficient supplies are necessary to last from one post to another.

"I would not like to say just exactly what the cost of the trip via the 'back door route' would be, but I think it could be made for less money than any of the others which are now so popular. Canoes can be obtained readily from the Indians, but it is not advisable to attempt to use them without the assistance of an Indian who is familiar with the frail birch-bark canoes. These canoes can be secured to carry several tons. The Hudson's Bay company also contracts to take freight north on their steamers during the season of open navigation.

"With a small expenditure of money this route can be improved and the facilities increased so that any amount of freight and any number of passengers can be taken to the gold regions. I was told at Edmonton that still south of the international boundary line the mountains were very high, but that the elevation continually lowered northward until there remained only a high plateau. In

fact, the pass through the Rocky mountains which the British Pacific will use is some 200 miles north of the Canadian Pacific and only about 2,200 feet high, being the lowest elevation at which any transcontinental road crosses the divide.

"In talking with members of the Hudson's Bay posts and officers of the Canadian mounted police at Calgary and Edmonton, and also at Victoria and up in the famous Caribou country, I was told that several years ago some $60,000,000 in gold was taken out; that the mines were being worked by hydraulic mining; that all the beds of the small streams from the 60th parallel to the mouth of the Mackenzie river were filled with gold. A great number of those running west from the Mackenzie river eventually empty into the Yukon. When I was told this, of course, I did not pay so much attention to it, because the gold fever was not so rampant as at present. The Cassiar and Ominaca districts have long been known to be extensively rich in gold, and if one-half of what has been told to me is true they will not only rival but surpass the now famous Klondike. I have seen any number of the most beautiful specimens of white quartz filled with gold, and when the method of quartz mining is perfected up in that far north the present placer claims will soon seem wonderfully poor in comparison.

"Dr. Dawson, the eminent geologist of the Canadian government, who only a few years ago made an extensive and exhaustive geological survey of the northwestern provinces of Canada, told me that he considered the reason for the gold being found in the small streams was due to the breaking and grinding action of the glaciers more than for any other cause. Gold undoubtedly exists in places in large and paying quantities, but quartz mining

requires machinery and money, and, of course, is not the poor man's proposition, as is placer mining."

Mgr. Clut, the missionary auxiliary bishop of Athabasca and Mackenzie, has been in that far off land for many years, laboring as an Oblat father and subsequently as bishop. He is quite familiar with the country which is now attracting such numbers of gold-seekers, and a quarter of a century ago he journeyed through the whole Yukon country. Although no one dreamt of gold deposits then, and Mgr. Clut knew nothing of the mineral resources of the region till afterward, he knows all about climatic conditions of the Yukon district, and how best it can be reached.

In the spring of 1872, Francois Mercier, now of Montreal, returned to San Francisco from Alaska, where he had been representing the Commercial company of Alaska, and reported that the Indians were becoming so troublesome as to obstruct trade. The company promised to send up a couple of hundred armed men to protect the traders, but Mr. Mercier suggested that two or three roman catholic missionaries would do more good than as many hundred soldiers, and so Father Clut was asked to go. Accompanied by several French Canadian representatives of the company, he set out on August 30, 1872, and did not return till September 8, 1873, wintering at Fort Yukon.

Speaking of the experiences of that trip, which was a long and difficult one, Mgr. Clut said emphatically that it would be more than folly for any one to attempt to reach the Klondike without being able to take along with him plenty of warm clothing, as well as a good supply of food. He had already dissuaded a good many people whom he had met during the present visit east, from starting off at once for the so-called land of gold. It would

be simply impossible for gold-hunting to be accomplished during the winter with snow on the hard, frozen ground.

As to the best means of reaching the country, Bishop Clut is of the opinion that the route by the Mackenzie river is by far the safest and most practicable. Of this route he said: "It may take longer, but the difficulties the prospector will have to overcome going via Fort Macpherson will be certainly very much less than in going through the passes from Dyea on the coast. After leaving Macpherson the Rocky mountains have to be crossed, the distance to what is called Lapierre house being about 80 miles, and this is the only portage to be met with, save one of 16 miles after leaving Athabasca landing, 60 miles from Edmonton."

According to men who have traveled the Mackenzie river route, $200 is sufficient to cover transportation expenses from Chicago to the Klondike country.

To travel over it passengers must go to St. Paul and there take train over the Canadian Pacific. Leaving St. Paul at 9 o'clock in the morning, the international boundary at Portal will be crossed at 4 o'clock the next morning. At 2:22 the following morning the Chicagoan will find himself at Calgary, where he will leave the main line of the Canadian Pacific and travel to Edmonton, a point 1,772 miles from Chicago, and where the rail portion of the journey ends. The railroad fare from Chicago is $53.65.

A stage ride of 40 miles will bring him to Athabasca landing. Here he will find a continuous waterway for canoe travel to Fort Macpherson at the north mouth of the Mackenzie river, from which point the Peel river leads south to the gold regions. From Edmonton to Fort Macpherson is 1,882 miles.

A recent letter from a missionary declared the ice had

only commenced to run in the Peel river Sept. 30 last year. The Peel river is the water route southeast from Fort Macpherson into the gold regions.

Travelers need not carry any more food than will take them from one Hudson's Bay post to the next, and there is abundance of fish and wild fowl along the route. They can also get assistance at the posts in case of sickness or accident.

If lucky enough to make their "pile" in the Klondike they can come back by the dog-sled route in the winter. There is one mail to Fort Macpherson in the winter. Dogs for teams can be bought at any of the Hudson's Bay posts which form a chain of roadhouses on the trip.

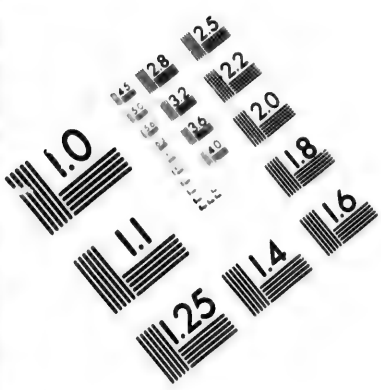
Parties traveling alone will need no guides until they get near Fort Macpherson, the route from Edmonton being so well defined.

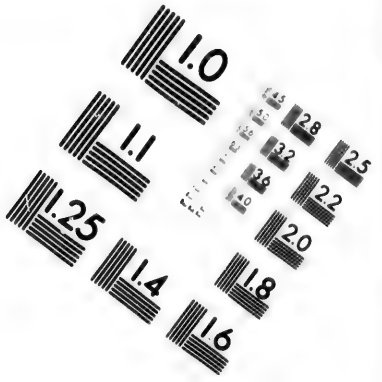
It is estimated that a party of three could provide themselves with food for the canoe trip of two months for $35. Pork, tea, flour and baking powder would suffice.

Parties should consist of three men, as that is the crew of a canoe. It will take 600 pounds of food to carry three men over the route. The paddling is all done downstream except when they turn south up Peel river, and sails should be taken, as there is often a favorable wind for days. There are large scows on the line manned by ten men each, and known as "sturgeon heads." They are like canal boats, but are punted along, and are used by the Hudson's bay people for taking supplies to the forts.

This is the way one enthusiastic advocate of the "back-door" route puts the proposition:

"Let the voyager build his boat at Fargo, N. D., or Moorhead, Minn., on the Red River of the North, float it down stream (north) to Lake Winnipeg, then cross Lake Winnipeg to the mouth of the Saskatchewan river, then





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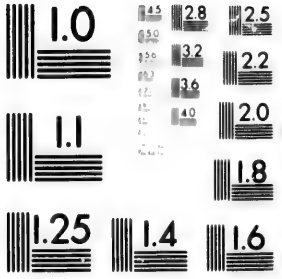

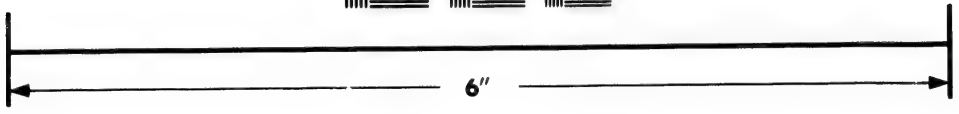

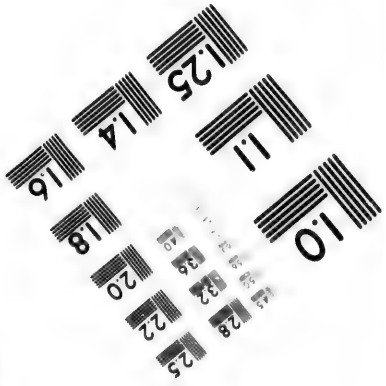

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follow that river up stream to the forks, where the north branch empties its waters into the Saskatchewan. Follow from there the North branch up stream to White Whale lake. Here is the first transfer overland, 10 miles westward to Pembina river. Then float down stream on the Pembina river to the Athabasca, thence down stream to Lake Athabasca, crossing it and taking the Slave river down stream. Crossing the Great Slave lake, take the Mackenzie river northward (down stream) until the mouth of the Liard or Mountain river is reached. Follow the Liard or Mountain river up stream to Simpson lake, where the second and last transfer by land occurs, 50 miles northward to Francis lake, which is the headwaters of the Pelly river. Float down this Pelly river to the Yukon, thence down the Yukon, prospecting as you go, until your El Dorado is reached.

"A boat 25 feet long, 5 feet wide, 2½ feet deep, built of wood or sheet iron, rigged for two pairs of timber wheels, or with an iron axle made to fit the bottom of the boat, with which to transport it across the land, could easily carry six men and their supplies for a year, allowing 3 men to rest while the other 3 manage the boat. Take four pairs of good, strong oars, four long poles, a sail and about 1,000 feet of 1½-inch strong rope for cordelling purposes on some of the streams where you go against the current.

"All the land you traverse after reaching the British possessions is where the Hudson's Bay company has its many outposts and trading houses. This country, until Great Slave lake is reached, is filled with all sorts of game.

"It will probably take no longer to go this route than it will to go by vessel from Seattle to St. Michael, at the mouth of the Yukon, and thence 2,000 miles up the Yu-

kon on the very small steamers in use on that river, and as there will be little opportunity to use or spend money on this route, it being one in which the voyager 'works his way,' it will no doubt prove the popular overland route to the gold fields by the class of hardy spirits not overburdened with cash.

"A light steam vessel or steam launch could tow 15 of these boats as far as the depth of water would permit, and at the two places where transportation by land is required it will not be long before some sturdy, enterprising man will locate at each, with horses or oxen, with wheels rigged especially to transfer these boats and their cargoes from one stream to the other, thus rendering the voyage one of only ordinary labor of from 3 to 5 weeks to complete.

"The prospects are that enough hides and furs can be taken while in transit to pay all the expenses of the excursion. These rivers are solidly frozen until March or April. Leaving Fargo when the ice breaks, these boats can follow it, and as fast as the ice runs out of the Mackenzie you follow, which will permit you to reach the gold fields while the Yukon ice is running out, at least one month before any steamer can ascend it. You can carry your guns, axes, saws and supplies for a year with you. The steamers on the Pacific and the Yukon will not carry a pound of any sort of freight for a miner, but compel them to purchase everything they desire from the stores belonging to the company that owns the vessels, and at prices that almost amount to confiscation."

Another man who believes in the "back door" route is "Si" Malterner of Canton, N. Y., who, for the third time, is on his way to the Arctic ocean by way of the lordly Mackenzie.

Just before leaving home he said:

"Take the Canadian Pacific to Calgary and the branch line to Edmonton. A stage ride will place you at Athabasca landing, on water that empties into the Arctic ocean. From there you pass through the Great Slave lake into the Mackenzie river. Float down that stream about 1,100 miles to the mouth of the Peel river. Go up the Peel about 15 miles to the mouth of the Husky. Follow up this stream to the divide. A portage of 4 miles will put you on the Porcupine river. From there you paddle up stream past Cudahy and Circle City to Klondike, or rather Dawson City.

"I will make the trip alone. Two years ago I went with a party from the lake to the ocean and back. Last year I went alone. I left the landing May 1, and landed at the mouth of the river July 30. The Mackenzie, from the lake, is from 3 to 8 miles wide. Where it is joined by the Peel it widens to 15 miles, and at its mouth it must be about 60 miles wide. From lake to ocean is about 1,400 miles. There are some bad places in the stream. One of these consists of a succession of dangerous rapids extending for 100 miles, that no one should attempt unless under the direction of an experienced guide. The current is strong and rapid. I made the trip in a seventeen-foot Petersborough canoe.

"The country through which the river runs is rolling and has considerable timber along the low places. There is considerable game, including moose, caribou, sheep, birds and mosquitoes. The latter deserve to be classed as game, though the man is the hunted, not the hunter, in their case. In summer it is hot along the river. Near the Arctic circle the thermometer sometimes stood at 75 and 80. The sun, of course, shines all summer, so there is no chance to cool off.

"There is but one way to get back, and that is to draw

your boat by a rope and walk along the bank a la canal-boat. The Hudson's Bay company operates an 80-foot boat from the mouth of the Peel river to Fort Smith, 200 miles this side of Great Slave lake, but does not accept passengers or freight. This company also has stations every 200 or 300 miles along the river."

P. J. Curran of 5818 Aberdeen street, Chicago, will start for Alaska about March 1. He expects to go "cross lots" and to get there in seven weeks.

Mr. Curran, who is employed at the stock yards, was a member of the Canadian mounted police patroling the British Northwest territory for 8 years. He is familiar with the country and the needs for a journey and will lead a party of four from Chicago to the Klondike gold fields. Mrs. Curran, who was a teacher and missionary among the Indians of the northwest for 15 years, wears two bright gold rings which were molded by a frontier blacksmith from gold panned by her husband from the Saskatchewan river.

Gold is found, according to Mr. Curran, in all of the streams of the northwest in varying quantities and has been mined in a desultory way for many years.

During his residence in the territory Mr. Curran says prospecting parties frequently pushed north, but the policy of the Hudson's Bay company, which has grown rich from trading with the Indians since the time of Charles II., has been to discourage white men from getting a foothold.

Mr. Curran outlined his plans as follows:

At Edmonton we will purchase a dog team, and travel north with these swift runners along the system of lakes and rivers which find their outlet into the Arctic ocean through the Mackenzie river.

"From some point on the upper Mackenzie we will

CIRCLE CITY.

turn our course overland, and thus make the journey to the gold fields of the Klondike.

"Starting from Edmonton March 1, we will make the journey after the most rigorous part of the winter has softened under the influences of the lengthening days, but before any of the waterways have broken up, so that the journey may be made all the way with dog sledges. We expect to be on the grounds by the time spring prospecting opens."

Mr. Curran said that many of the prospectors were not taking counsel of wisdom in selecting their outfits. "I see no reason why," he said, "the miners cannot live for a season on the kind of rations which the Canadian police thrive on all of the year. A pound of flour and a pound of bacon a day sustains the life of those in the government service, and often sends them back living pictures of health to their friends, who had seen them leave their eastern homes frail and delicate. Canned goods are out of place in the traveler's outfit for the reason they take up room and are not valuable as food.

"For supplies to last one man 400 days I would take 400 pounds of flour, 400 pounds of bacon—fat meat is necessary to sustain life in a cold climate—75 pounds of beans, 50 pounds of evaporated apples, 60 pounds of sugar, 12 pounds of tea. Tea is better as a drink in cold countries than coffee. Northern natives and white traders use tea as the staple drink.

"My clothing outfit will be two suits of heavy underwear, two heavy flannel shirts, six pairs of socks, two pairs of long stockings, two pairs of moleskin trousers, one pair of heavy boots, four pairs of moccasins, two pairs of druffels, leather mittens, wool mittens, fur cap, a Canadian toque, four pairs Hudson bay blankets and a bearskin robe."

The things described, with pick, shovel, tools and a canvas canoe, will comprise the load which Mr. Curran expects his dog team can haul over the track at the rate of 50 miles a day. A good dog team, he thinks, should be purchased at Edmonton for $60, unless dogs have "boomed" since he priced them in that city. Mr. Curran estimates the expense of the trip at $600. He will purchase his entire outfit at Edmonton and not try to obtain anything from the stores and stations of the Hudson's Bay company which are scattered along the way.

The country through which he will travel abounds with game—deer, moose, elk, red deer, ducks and geese, and black and grizzly bear are common enough, so that the tourist, armed with shotgun and rifle, need not want for fresh meat.

Mr. Curran is of the opinion that this overland and fresh-water route will be the popular line of march when gold-hunters become familiar with its merits.

CHAPTER XIII.

A YUKON DELICACY.

GOLD SEEKERS who take the all-water route to the diggings will have plenty of opportunity of eating a delicacy that is characteristic of the Yukon river. A part of the regular fare on the Yukon steamboats is wild goose.' At the first meal one is likely to approach this rare bird with a feeling of thankfulness that one's lines are cast in such favored places. But this responsive condition of mind does not hold its place very long, for wild goose soon ceases to be a joy, and becomes one of the hardships of the country. The bird is taken during its nesting season, or at its conclusion, and is preserved in brine as pork is pickled. The trade in "goose-breasts," as the product is called, and in the eggs has become a considerable item of local commerce. Seven or eight varieties of ducks and the different kinds of swans also are taken and sold under the same comprehensive name.

The summer haunts of the waterfowl of North America extend over a wide area of British America and Alaska. Wherever there are stretches of marsh land they come in greater or less numbers, but their favorite nesting places are along the shore of Bering sea, where there are many thousand square miles of low swamp or grass land, called tundra. The numbers of waterfowl of all kinds are decreasing, but it is only within the last few years that this fact has become more apparent. Various gun clubs are becoming interested in the question. The

fish and game commission of the state of California is making an investigation in the hope of finding a remedy to save them from extermination.

Any one with an idea that the guns of the sportsmen are any sort of a factor in the extermination of the birds should visit Alaska during the nesting period. From time immemorial the Eskimos have taken eggs and fowls during the short season they were available. There is no system of "candling" eggs to determine their grade in vogue among the natives. An egg is an egg to them at any period of incubation, and as long as the season lasts they live in riotous plenty.

Formerly they were contented with what they could eat during the season, but since they have come into closer contact with white people they have learned more thorough methods, and now they provide eggs and birds to last the whole year through. They dry or pickle the flesh, and the eggs are preserved in barrels of muckaluck —walrus oil. An addled goose egg kept about a year in rancid oil appeals strongly to an Eskimo's peculiarly cultivated taste.

Of late years the outlet for the product of waterfowl has become extended and the eggs and geese have become regular articles of sale. In addition to their natural craftiness in hunting, the natives have learned system from the whites. An egg taken at any time during the season is eatable, but to be salable it must be fresh, so the Eskimos divide their territory among themselves and make a systematic round of the nests each day during the laying season. They get an egg every day from each goose's nest, and finally, when her spirit is broken and she refuses to yield longer, she is snared with a noose of sinew and goes into pickle, while her nest is left off the route.

The geese do not fly during the period of nesting, but the marsh grass and low bushes offer a place of refuge from their pursuers. That they are not exterminated in one season is due to the fact that there are not enough natives to cover the whole ground systematically. As it is, they make excursions daily in their muckaluck canoes into new fields and in a few hours are able to load their little boats. They take many young goslings before they are old enough to run. The fresh eggs and the old birds are traded to various white dealers, the cost of the eggs to the latter being about 25 cents a hundred, yet last fall they were shipped to Forty Mile and sold at $1 a dozen. Another outlet for the product is among the whalers who touch at Bering sea points. It is also traded to the Yukon Indians for furs and salmon or even sold back to the Eskimos after they have exhausted their own supply.

On the broad expanses of tundra at the delta of the Yukon and along the coast either way from the river the wild fowl have been particularly plentiful, but are year by year becoming less so. It is the habit of the birds to return to their native place for nesting, and, as a consequence, when the stock of any locality is exhausted there are none to take their place, and over much country where there were formerly endless flocks now there are none. The Eskimos are at great pains every year to find out good hunting grounds, in spite of the fact that with their light-draft boats, rigged with sails, they are able to patrol a vast deal of coast line, penetrating innumerable inlets that otherwise would be free from intrusion.

Although the ducks are raided and suffer depletion, they are more wary than the geese, changing their nests if disturbed, or, if pursued too closely, moving to another

locality. The lakes far inland are their favorite breeding places, and nobody knows how many such bodies of water there are in Alaska. They are a part of every river system—beautiful lakes, with shores abounding in grasses and succulent herbage.

The only salvation for the waterfowl of North America seems to be in the government of the United States co-operating with Canada for their protection. If the natives were prohibited from taking the eggs at any time it would change the present rate of extermination into a perceptible increase in the size of the flocks. Eskimos are obedient and law-abiding when they understand their duty, and a few game wardens could maintain the restrictions over a great territory.

Archdeacon Canham of the Church of England mission at Rampart house on Porcupine river, has a curious fossil which the Indians found in the alluvial deposits along the Porcupine. It was the skull and horns presumably of an extinct variety of bison. It differed in some respects from the head of an ordinary buffalo, the horns, for one thing, being straighter. Their diameter at the base was 3 inches, and the skull at the eyes measured 13½ inches in width.

The Indians claimed to recognize it as a species of water buffalo, sea-cow or other animal of aquatic habits, the like of which, they assert, is still living, but this assertion may be classed with another that is sometimes made, to the effect that there are mammoths still alive in Alaska, as being more than doubtful. But the valley of the middle Yukon is a vast bone-yard. From the great variety of fossil remains found in the country it is easy to imagine that it once contained almost every animal known to science and more.

The traveler, standing upon the deck of one of the

small stern-wheel boats laboriously pushing its way against the powerful current of the Yukon river, will be struck with the immense area of alluvial soil, which has been carried bodily for centuries and ages from the far interior to the verge of Bering sea. The land there is being made and unmade constantly. The ice-laden freshets of each returning spring never leave unchanged the contour of the shores which but imperfectly confine the rushing waters. A solid cake of ice, caught in an eddy and set into swirling motion, grinds against the loosely constructed bank and undermines it until a mass of sand or clay falls down upon it.

The impetus given by the precipitated earth drives the ice cake out of the eddy and sends it adrift upon the current, to be carried on and on, until stranded again upon the low beaches of the delta or some distant island of the sea, when its cargo of soil will be deposited as a gift from the great Yukon. On the other hand, land making is going on just as constantly. The accidental lodgment of one of the gnarled giants of the inland forests on its way seaward may cause the formation of a muddy bar or island within the space of a few years.

Thickets spring up from twigs of willow deposited by the passing flood, or from seed carried by the wind and strengthen the new ground, binding together its component parts with their roots until it can resist the ordinary pressure of rushing flood and grinding ice. Even then a sudden rise of a few feet in the water, or an unusually heavy formation of ice on the upper river may undo in a few moments what nature has been years in creating. The little island will then dissolve like snow before the sun and its component parts be torn away and carried suspended in the raging flood until the neutralizing action of opposing tides cause them to settle

and scatter broadcast over the shallow bottom of Bering sea contiguous to the great river's mouth.

Under more congenial skies this vast accumulation of the richest soil would doubtless attract a teeming population; and who knows whether this mighty water power may not be now building for the future, when some slight deviation in the axis of the whirling globe may unlock the icy fetters that now bind the land, compelling man to rely upon the products of the sea alone for his subsistence, and teaching him to look for but scanty favors from mother earth. Should that time come in some far distant period, there will be in the Yukon valley a field for agricultural wealth and greatness surpassing in range and possibilities that of the ancient Nile. The very sea is aiding, building up and enriching this possible granary of future geologic ages by sending its finny denizens by countless millions up into every vein and artery of the vast surging and throbbing water system, impregnating both soil and water with minute deposits of highly fertilizing qualities.

The few settlements scattered over the large, flat islands of the Yukon delta are perched upon the rare points of vantage to be found in this land of desolation and periodical submersion. An elevation of from 10 to 15 feet above the ordinary flood line is considered sufficient for a village site, especially when further protected by adjacent sloughs, through which the waters of freshets many escape from the main channel and spread at will over the tenantless "tundra." The first section of a site is probably guided also by the presence of a protecting *chevaux-de-frise* of drift logs, affording partial security from the attacks of ice floes; but the shiftless inhabitants can not withstand the temptation to use up their safeguard, and in the course of a few years their homes are unprotected

and they scour the river banks for miles to gather fuel for their fires.

Though careless and short-sighted, these people are made industrious by necessity. Any relaxation of their daily efforts in pursuit of seals, beluga, mink, and musk-rats, as well as any failure to secure their quota of salmon and other fishes, simply means starvation, and such periods of distress as do occur can always be traced to corresponding ones of idleness indulged in by these superstitious pagans at the behest of their crafty "shamans," or medicine men. Living as they do in the direct path of ice gorges and floods, it is not surprising to find traditions among them of the disappearance of whole villages within a night carried away by evil spirits, according to their belief.

Along the Ap-hun, or northern mouth of the Yukon, through which light-draft steamers from St. Michael enter the river, the banks are somewhat higher, and the small settlements more permanent in character. At Kotlik and Pastolik trading stations have been in operation for many years. At the former place, which is situated at the head of a blind slough, the improvements consist of substantial log buildings surrounded by a strong stockade, including a neat chapel erected by the Russian trader for the convenience of his family.

To the traveler by boat or canoe in summer or with dog teams in winter, Kotlik has ever been a welcome place of shelter and refuge, and many would have perished but for the ready hospitality of this oasis in the ice desert.

The season of rejoicing and prosperity with the dwellers in the delta lands begins with the disappearance of the ice, which is simultaneous with the advent of the salmon. The sun of the long Arctic summer day stands

bright in the heavens, and under its genial glare the harvest of fish goes on without interruption, and as everybody can once more revel in the richest food, the pangs of hunger of the winter just past are forgotten Children roll and tumble over the mossy hummocks of the "tundra" searching for eggs; for nature, having once thrown off the austere garb of winter, fairly showers her blessings on the wards upon whom she grudgingly bestows her scantiest gifts for 8 months of the year.

Busy as they are, both man and beast, gathering and consuming food, they do not miss the first faint whistle of the steamboat, still far away, battling with the shifting shoals that beset the entrance to the river. Through the stillness of the summer air the churning and puffing of the boat can be heard far away, and as it finally rounds the last bend the joyous shouts of women and children are joined by the piercing but dolorous yell of the dogs, who resent all arrivals and departures.

The steamer to these people means tobacco, powder, lead and caps in exchange for mink and muskrat skins. It also means flour and some calico for the women, with the few enterprising individuals who have piled up a few cords of wood on the river bank to sell to the captain at $3 a cord. The captain would gladly buy a great deal more at that price, but the supply is limited by the amount of energy and ambition latent among the men of these scattered communities. The boat's furnaces are arranged for wood, and wood the captain must have; therefore he finds himself compelled to carry a number of axmen, some on small wages and some working their passage, but all to be fed.

With a crew numbering from 20 to 30 it takes from 10 to 15 hours to wood up, and each cord of fuel is made to cost much more than $3. With one-half the energy pos-

sessed by the Thlingit tribes, the men living on the lower reaches of the river, where driftwood is piled up in huge winrows, could earn money enough each season to better their condition in many ways and place them beyond the reach of want and starvation. On ascending the river, winding slowly through the innumerable bends, dry land still appears insignificant in area when compared with the boundless watery surface, until the first hills appear not many miles below Andreafsky station. From the bluff, quite insignificant in height, above the small village of Kahmiut can be seen, at a single glance, the many broad outlets of the Yukon from this point.

Andreafsky, formerly a fortified trading post of the Russians of considerable importance, and once the scene of summary vengeance inflicted upon a band of Ingalik for depredations committed on the upper river, is now but a shadow of its former self. The strong stockade has been laid low and has probably fed the fires of the Scandinavian trader, who for many years collected the furs of the river and adjoining "tundra," claiming as his field of operations the vast triangle between the Ikogmiut mission, the northern mouth of the Yukon, and Cape Vancouver.

His large "bidars," laden with goods or skins, could then be seen on river, slough and lake throughout the summer, and in the winter his dog teams were known in every village. Now what there is left of the trade passes through native channels to St. Michael, the headquarters of the Alaska Commercial company in the Yukon district, and the former trader, now a full-fledged steamboat captain, with a gold band around his cap, passes his winters in retirement at the scene of his former activity.

The summer traveler who camps at Andreafsky beholds

a picture of neglect and desolation, relieved by two or three log cabins kept in repair, with windows and doors shuttered and barred. The surrounding buildings are wrecks, with falling roofs and gaping walls. A warehouse built by the Russians, of huge logs that still resists decay, bereft of its doors, contains a heterogenious mass of rusty ironware, oil casks, coal-oil cans, and broken traps.

From Andreafsky upward, the habitations of the natives exhibit an entire change in character and construction. They are nearly all above ground, with walls of upright logs and planks and slanting roofs covered with grass and sods. The only entrance is a round or square aperture in the center of the front wall 18 inches or two feet from the ground. Low platforms line three sides of the houses, which are from 15 to 20 feet square. A fireplace and corresponding smoke-hole occupy the center, and all the available space overhead is filled with sticks and rods, from which dried fish are suspended, making it impossible to move about in an erect position under the malodorous festoons, from which pellucid drops of oil fall gently upon the inmates. Many of these attractive homes are also provided with excavated additions for places of refuge during extremely cold weather.

The "kuggats," or storehouses, in all these villages are large and strongly built, a sure sign that food is plentiful. Occupying a prominent position midway between the dwellings and the beach, these caches are all that the passing traveler sees of a village, and as they are thickly hung with drying salmon throughout the summer they appear from a distance like bright crimson spots upon the green banks of the river.

The inhabitants of this region could easily gain their subsistence by devoting their time to the catching and

VIEW ACROSS THE YUKON.

curing of salmon during the season, but they have many other sources of supply. Both seals and beluga ascend the deep, wide channels of the river. The marshes on both sides of the river are fairly alive with wild fowl, ducks, geese, swans and cranes; minks, muskrats, land otters and arctic foxes yield marketable furs, and bands of reindeer still pay occasional visits to their old feeding grounds.

Many populous settlements are located in this vicinity, the largest being the village of Kinegmagmiut (the Razboinitskaya, or robber's village, of the Russians). On approaching the neighborhood of Ikogmiut, the Russian mission, long, wooded ridges come in sight on the northern bank of the river, the villages become more frequent, and no eddy or other point of vantage along the shores is without its fish-traps, for which the willow thickets of the sandy islands furnish ample and most excellent material. Birch-bark canoes here begin to make their appearance, and are used in preference to kayaks for fishing or for gathering wood or berries.

The Russian mission buildings nestle among the hills on the right bank of the river, looking down upon the half dozen large native houses and a store and warehouse on the sandy shore. From Ikogmiut upward the scenery along the main banks of the river becomes quite attractive, alternating between wooded hills and towering cliffs of sandstone worn into fantastic shapes by flood and weather. The middle of the river is dotted with low islands, divided by muddy sloughs and covered with dense thickets of poplar, willow and stunted spruce.

From the confluence of the Yukon with the Chageluk slough and Innoko river, to the mouth of its largest tributary, the Tanana, its banks are settled by a branch of the Athapascan family, known as the "Ingalik." Unlike their

kin on the upper river and in the interior, these people depend more upon fish for their subsistence than upon game. The close vicinity of the Eskimo, with whom they have intermarried (in former times by forcible abduction) has affected their mode of life and to a certain extent modified their tribal characteristics, although to a very recent time there was but very little friendly intercourse with their neighbors. They have adopted the oil of the seal and beluga (which the upper tribes abhor) as an article of food, and in many of their villages are found public structures corresponding to the Eskimo kashga.

In intelligence, mechanical skill and ingenuity the Ingalik excel the Eskimo. They manufacture clay dishes and vessels, and weave straps for dog harness and small mats from the wool of the mountain goat, or from any textile material at their command. When furnished with models, they carve in wood with the most primitive tools very creditable imitations of artistic ornaments or even statuary. With proper teaching the Ingalik children of both sexes acquire the English language in a very short time, and, unlike the Eskimo, they are not ashamed to use it when once mastered.

CHAPTER XIV.

INTERNATIONAL BOUNDARY DISPUTE.

A NEW feature of the boundary question has arisen out of the inability of the geographical commission of the United States to agree with the determination of the Canadian land surveyor, William Ogilvie, as to the exact location of the 141st meridian line, which, by the treaty of St. Petersburg, divides Alaska from the British possessions. This seems to the unscientific a very trivial thing to differ upon, as the whole amount of land involved is at the most a strip of a few hundred feet, and in face of the fact that the real issue is the location of the coast boundary.

Mr. Ogilvie has had the matter in hand since 1887, and his work has been very thorough and doubtless conscientious. It has become necessary since the valuable discoveries on Forty-Mile creek to fix the line definitely and for some reason—patriotism, real or mistaken, or a difference in calculations—the commission has so far failed to agree on the exact location of the meridian. During the spring, summer and autumn the continuous twilight—at midsummer daylight—renders invisible the stars that are necessary for accurate observation. Were telegraphic communication established with the south and east the portion of the meridian practically necessary to locate could be laid down, with a probable error of not exceeding, say, ten feet; but with the

only means at present available the result of a season's observation by two of the most experienced observers may differ many hundred yards. Unfavorable meteorological conditions are also serious obstacles to the work in hand.

The first attempt at defining the Alaskan boundary was made by Lieut. Schwatka, who in 1883 made a rough and necessarily crude survey of the Lewes and Pelly-Yukon rivers from their head to Fort Yukon, situated near the mouth of Porcupine river, a distance of about 500 miles. Lieut. Schwatka determined the position of this meridian line from his survey and located it at the mouth of what is now known as Mission or American creek, on the headwaters of which valuable discoveries of gold were made on the Alaskan side.

But in consequence of numerous representations to the Canadian government and British demands for claims in the gold fields of the Yukon basin, it was determined to send in a joint geographical and geological survey to thoroughly examine that portion of the Yukon region lying in British territory. For this purpose Dr. G. M. Dawson, director of the geographical survey of Canada, was deputed to make the geological and Mr. Ogilvie the geographical survey. Dr. Dawson's observations were confined to the Pelly and Lewes rivers, but Mr. Ogilvie carefully examined the entire country from Pyramid island and Chilkat inlet—at the head of the Lynn canal—to the head of Dyea inlet, thence over the Chilkoot pass and down the lakes and rapids of the Lewes and Yukon rivers to the vicinity of the 141st meridian. The result of Mr. Ogilvie's observations was to fix the meridian fifteen miles higher up the Yukon river and nine miles farther east than Lieut. Schwatka's determination, which latter, however, is not, from the nature

of the survey, entitled to consideration as a practical line.

In 1889 our government decided to verify Mr. Ogilvie's determination and dispatched two members of the coast-survey staff—Messrs. McGrath and Turner—to Alaska to determine by astronomical observation the position of the much-sought meridian line on the Yukon and also on the Porcupine river. The result of the observations was at first in favor of Canada, as against Mr. Ogilvie's determination, and located the boundary considerably farther west—otherwise, into Alaska—than the latter gentleman had done. Lately, however, a revision of Mr. McGrath's computations locates the disputed line at a point far east of Mr. Ogilvie's, which circumstance has largely contributed to the present difficulty.

With the rapid development of this locality it is unfortunate that this line has not been fixed, but the real reason for the present uncertain condition of things is in the isolation and lack of means of communication.

In the meantime the Canadian mounted police are maintaining order and making judicial awards in mining disputes, without any particular regard for the line. In relation to this question the wish is often expressed that the contention will be finally settled by our government buying all the Canadian territory west of the Mackenzie and north of Portland canal.

It has always been currently reported and believed that the international line crossed at about Forty Mile post, leaving that point just within Canadian territory, but instead of this Mr. Ogilvie's observations reveal that the meridian at this latitude is nearly forty miles up the creek, thus giving to his government fully one-half of this particular placer district. Much disappointment is

expressed at this revelation, as most of the miners are Americans.

The United States officials at Washington say that there is no necessity for the miners in the Klondike district to mix jingoism with placer mining. They say there is no manner of doubt but that the Klondike diggings are far enough east of the international boundary line to bring them wholly within the Northwest territory. The Dominion cabinet insists that there is no necessity for any discussion whatever in regard to the location of the boundary line so far as the Klondike region is concerned, and the Canadian officials are collecting a license tax of $15 from each prospector and will collect an annual fee of $100 for each claim worked in the Klondike district. The customs officials are collecting quite a revenue by making the American miners pay an importation tax on the personal belongings brought into the Klondike district.

The boundary-line dispute, while it is a matter of live interest to the people of Alaska, has never been taken very seriously. It is freely conceded that the Canadians may change their maps any way they like to suit their taste in such matters, and may afterward get what consolation they can out of such maps. The line which has been practically recognized in matters pertaining to customs and to all other frontier relations begins at the south end of Prince of Wales island, at the natural division afforded by Dixon entrance, and runs thence eastward in open water to the entrance of Portland canal, or, as it was termed in the original agreement, Portland channel. The line follows up this inlet to its head, which happens to be at its intersection with the 56th parallel, and so that degree of latitude was agreed upon as a corner. To this point the boundary could hardly admit

of any controversy. It is true that the Canadians claim that Behm canal was meant instead of the Portland, but that is very unlikely, as Behm canal has no particular head, being a strait instead of an inlet, and not being a natural division as is the line that has always been recognized.

At the time this line was established, which was in the year 1825, the English had no conception of the value or of the topography of the country. It was necessary to fix a definite line, but the territory was esteemed of no value, and the motives governing the transaction were sentimental rather than practical. From the point at the intersection of the 56th parallel it was thought fair to continue on natural lines. The coast range of mountains was known to be the continental divide or watershed between the Pacific and Arctic oceans. It was assumed that the summit was a comparatively regular line parallel with the coast and only a few miles back from it, and so the agreement was made on this basis, with the provision, however, that the Russian territory was not to extend more than ten leagues inland. This thirty-mile strip was to continue up the coast about 700 miles to another natural corner which had been previously recognized in Mount St. Elias; or to the intersection of this coast-strip limit with the 141st degree of west longitude. From Mount St. Elias the line is due north to the frozen ocean.

This coast strip or pan-handle of Alaska is the part that has been in contention. Since the agreement of 1825 it has developed that the natural line which was evidently contemplated by the convention is so irregular as to be wholly impractical, or, rather, includes more territory than we have ever claimed. The continental divide is a zigzag line that might easily be 3,000 miles long

and still be within the corners mentioned, and varying from twenty to 500 miles inland. In only one or two instances does it approach to within thirty miles of the coast, and the average width of the Pacific slope would hardly fall below 100 miles.

It is reasonable, however, to think that this is the natural line that both parties to the convention thought they were providing for a boundary, and it is obvious that if they had possessed full knowledge of the country the line would have followed as nearly as possible the summit of the range, giving Alaska a strip two or three times wider.

As it was impossible to follow the watershed, it was likewise impractical to parallel the coast line. Alaska is indented by thousands of inlets, straits and arms. As it was impossible to describe a margin that would follow closely all these inlets, the boundary that has always been recognized as a comparatively even line based on points thirty miles inland from the heads of the principal inlets. To take anything less than that for a basis—as, for instance, a line drawn from headland to headland—would give Alaska only the chain of islands and a few rocky promontories, with the coast line broken in a hundred places.

Any concession that our government might make to the Canadians would be purely gratuitous, and would be detrimental to the progress of the country. It would make very little difference in practice to any individual whether the country was all owned by Great Britain or by the United States. In practical affairs there would be no hardships experienced in living under either government. But the people of Alaska are very loyal and intensely American, and out of pure sentiment, if for no other reason, would oppose any concession whatever;

and aside from sentiment they would have very practical reasons for opposing a broken coast line.

Boundary lines are demoralizing and expensive anywhere, and are especially so in thinly settled and isolated countries. Customs regulations cannot be enforced, or, if they are maintained, they cost much more than they "come to." As a practical illustration, some enterprising individuals shipped by way of the Chilkoot pass, through American territory, a consignment of 150 ten-gallon kegs of liquor in bond. A special officer of the revenue department was sworn in to accompany the shipment to the British Columbia line at Lake Bennett, where it was released from bond. There was absolutely no secret about the whole plan. There was enough whisky in the shipment to keep every man on the Canadian side hilariously drunk for fifty years. When it was released they loaded it into barges at their convenience and quietly floated it down Lewes river to the Yukon and to Forty Mile post, and then on into American territory again to Circle City and all the lower Yukon mining districts, where they retailed it to the miners and Indians. Thus they evaded the federal customs duty and also defeated the liquor regulations of the district. It is estimated that, acquitting them of any intention of adulterating their stock, the shipment yielded $48,000.

With a broken coast line the revenue laws, the liquor and immigration restrictions would be almost a dead letter, and Alaska, instead of being a valuable possession to our government and an attractive field for legitimate enterprise, would be a thorn in her side and a veritable Cuba for corruption.

The claims of Great Britain to a big share of Alaska promise to occupy a large amount of public attention for some time to come. The claim is regarded by gov-

ernment officials here as preposterous. The senate, before which the boundary question was brought as the outcome of a treaty negotiated by Secretary Olney and Sir Julian Pauncefote, did not place itself on record in the matter, however. Before a vote was taken congress adjourned, so that the location of the divisional line, which has been in dispute since 1884, is no nearer settlement than it has been at any period in the last thirteen years.

A United States government official said in regard to the international boundary line dispute:

"On all maps from 1825 down to 1884 the boundary line had been shown as in general terms parallel to the winding of the coast, and thirty-five miles from it. In 1884, however, an official Canadian map showed a marked deflection in this line at its south end. Instead of passing up Portland channel this Canadian map showed the boundary as passing up Behm canal, an arm of the sea some sixty or seventy miles west of Portland channel, this change having been made on the bare assertion that the words 'Portland canal,' as inserted, were erroneous. By this change the line, and an area of American territory about equal in size to the state of Connecticut, was transferred to British territory. There are three facts which go to show that this map was incorrect. In the first place, the British admiralty, when surveying the northern limit of the British Columbian possessions in 1868, one year after the cession of Alaska, surveyed Portland canal, and not Behm canal, and thus by implication admitted this canal to be the boundary line. Second, the region now claimed by British Columbia was at that time occupied as a military post of the United States without objection or protest on the part of British Columbia. Third, Annette Island, in this re-

gion, was by act of Congress four years ago set apart as a reservation for the use of the Metlaktala Indians, who sought asylum under the American flag. The very latest Canadian map, published at Ottawa within a few days, while it runs no line at all southeast of Alaska, prints the legend, British Columbia, over portions of the Lynn canal which are now administered by the United States."

A recent report of the United States surveyors as to the boundary line in this region said: "In substance, these delimitations throw the diggings at the mouth of Forty Mile creek within the territory of the United States. The whole valley of Birch creek, another most valuable gold-producing part of the country, is also in the United States. Most of the gold is to the west of the crossing of the 141st meridian at Forty Mile creek. If we produce the 141st meridian on a chart the mouth of Miller's creek, a tributary of Sixty Mile creek, and a valuable gold region, is five miles west in an air line, or seven miles, according to the winding of the stream, all within the territory of the United States. In substance the only places in the Yukon region where gold in quantity has been found are therefore all to the west of the boundary line between Canada and the United States, with the exception of the Klondike region."

Nothing can be done more than already has been done toward marking the boundary line between Alaska and the British possessions along the 141st meridian until the senate passes upon the boundary treaty now before it. There is, however, no doubt of the location of the line along this meridian, and most people in the locality know where it is. The demarkation work was superintended by General Duffield, superintendent of the coast and geodetic survey, on behalf of the United States. He

expresses the opinion that a railroad can be easily constructed from Takou inlet to the Klondike gold fields, and believes that the enterprise will be worth undertaking, because of the richness of the mines.

"The gold," said General Duffield, "has been ground out of the quartz by the pressure of the glaciers, which lie and move along the courses of the streams, exerting a tremendous pressure. This force is present to a more appreciable extent in Alaska than elsewhere, and I believe that as a consequence more placer gold will be found in that region than in any other part of the world."

General Duffield thinks the gold hunters on the American side of the line have made the mistake of prospecting the large streams instead of the small ones. "When gold is precipitated," he said, "it sinks. It does not float far down the stream. It is therefore to be looked for along the small creeks and about the head waters of the larger tributaries of the Yukon. There is no reason why as rich finds may not be made on the American side of the line as in the Klondike district."

Prof. George Davidson, for many years at the head of the United States geodetic survey on the Pacific coast, speaking of the boundary line dispute, said:

"The main features of the boundary line between Alaska and Canada are the irregular line extending from the head of Portland inlet, in latitude 56 degrees, around the waters of the great archipelago Alexander at a distance of not greater than ten marine leagues from the continental shore, to the 141st meridian west of Greenwich, and the straight line running thence to the Arctic ocean on that meridian. Where this irregular line meets the 141st meridian rises the great Mount St. Elias, which is in latitude 60 degrees 17 minutes and 34.4 seconds and longitude 140 degrees 55 minutes and 19.6 seconds. This

peak is about twenty-seven statute miles from the ocean shore. From a point on the 141st meridian and probably in nearly the same latitude as Mount St. Elias, the boundary line runs through north to a demarkation point on the Arctic shores, a distance of 660 statute miles. In this great distance the line crosses comparatively few large streams. At 100 miles it crosses the headwaters of the White river, a tributary of the Yukon, flowing to the north-northwest; at 205 miles an unnamed tributary of the White river; at the last distance on the boundary line the Yukon river lies forty miles to the eastward, at a point known as the Upper Ramparts. The river continues on a northerly course, nearly parallel with the boundary line for seventy-five miles, to old Fort Reliance, near the Klondike, and thence trends seventy-five miles to the northwest by north, where the boundary line crosses it at 335 miles from Mount St. Elias.

"The headwaters of the main tributary, the Lewes river, reach into Alaskan territory at the White pass, the Chilkoot pass and the Chilkat pass, just north of Lynn canal. The geographical position of Fort Reliance, an old station of the Hudson's Bay company, on the right bank of the Yukon river, is latitude 64 degrees 13 minutes, longitude 138 degrees 50 minutes, or fifty statute miles east of the boundary line of the 141st degree. The stream named Klondike creek enters the Yukon about six or eight miles higher up than Fort Reliance, and on the same side of the river. So far as known it comes from the east-northeast for about 100 miles, and is reported navigable by canoes for forty or fifty miles from its mouth.

"Whatever doubt has been cast upon the position of the whole Klondike district being in British Columbia must have arisen from a misunderstanding of the dispute

existing upon the proper location of that part of the boundary line lying eastward and southward of Mount St. Elias. The north, or meridian line of the boundary has been accurately determined. The latest information places the independent determinations of this meridian made by the two governments at the boundary line within the width of a San Francisco pavement. So there cannot be much if any friction between the two governments upon this question. The only local dispute that could possibly arise would be in the Forty-Mile creek district, because the boundary line crosses sharp, steep mountain ridges of 2,500 and 3,000 feet elevation, and inferior instrumental means might cause a slight doubt of the direction in some instances. However, no dispute has arisen in the district, nor is it likely that any will occur. There is no doubt that the line has been satisfactorily laid down."

Canadian officials say that recent publications relating to the claims of Great Britain to a large share of Alaska are due to a misconception of the meaning of the designation, "British Columbia" and "undefined boundary" as printed on the map issued recently.

"We refrained from plotting any boundary line in that part of the territory constituting the coast strip running south and east from Mount St. Elias," said the surveyor-general of Canada. "In fact, the map was issued, as is well understood in Toronto, at the earnest demand of the public for reliable data as to the location of the newly discovered gold fields and the best routes of access thereto. It is compiled from the latest information and surveys in our possession, and in so far as the physical features of the country are concerned may be taken as correct. So, too, is it absolutely correct as to the boundary between Alaska and our Northwest territories.

"The determination of the point of intersection of the west coast boundary line with the 141st meridian seems to have been jointly agreed upon by American and Canadian officials, for it has been authoritatively stated that the peak of Mount St. Elias, always claimed by the United States, was found to be about two miles on the Canadian side of the point of intersection of the true boundary lines, but that Great Britain had agreed to allow the peak of the mountains to mark the point of intersection of the coast and meridian boundary lines. Canadian surveyors have marked the boundary at the most important points in the Yukon country for the convenience of officials.

"The report of the United States surveyors shows that there is no appreciable difference between the determinations of the two parties. On our map just issued you will see Birch creek marked wholly within Alaska, the mouth of it being some 350 miles west of the 141st meridian, as we have laid it down; neither can there be any dispute as to the boundary crossing of Forty Mile creek. In fact, I may tell you the exact difference there between the two surveys is six feet. There is, therefore, no shadow of foundation for this revival of the exploded story of Canadian land grabbing."

CHAPTER XV.

COLD WINTERS AND SHORT SUMMERS.

UNDER the direction of Secretary of Agriculture Wilson, Prof. Moore, chief of the weather bureau, has made public a statement in regard to the climate of Alaska. He says:

"The climates of the coast and of the interior of Alaska are unlike in many respects, and the differences are intensified in this as perhaps in few other countries by exceptional physical conditions. The fringe of islands that separates the mainland from the Pacific ocean from Dixon sound north and also a strip of the mainland for possibly twenty miles back from the sea, following the sweep of the coast as it curves in a northwesterly direction to the western extremity of Alaska, forms a distinct climatic division, which may be termed temperate Alaska. The temperature rarely falls to zero: winter does not set in until December 1, and by the last of May the snow has disappeared, except on the mountains. The mean winter temperature of Sitka is 32.5 degrees—but little lower than that of Washington, D. C.

"The rainfall of temperate Alaska is noted the world over, not only as regards the quantity that falls, but also as to the manner of its falling—in long and incessant rains and drizzles. Cloud and fog naturally abound, there being on an average but sixty-six clear days in the year. North of the Aleutian islands the coast climate

becomes more rigorous in winter, but in summer the difference is much less marked.

"The climate of the interior, including in that designation practically all of the country except a narrow fringe of coast margin and the territory before referred to as temperate Alaska, is one of extreme rigor in winter, with a short but relatively hot summer, especially when the sky is free from cloud.

"In the Klondike region in midwinter the sun rises from 9:30 to 10 a. m. and sets from 2 to 3 p. m., the total length of daylight being about four hours. Remembering that the sun rises but a few degrees above the horizon and that it is wholly obscured on a great many days, the character of the winter months may easily be imagined. We are indebted to the United States coast and geodetic survey for a series of six months" observations on the Yukon, not far from the site of the present gold discoveries. The observations were made with standard instruments and are wholly reliable.

"The mean temperatures of the months from October, 1889, to April, 1890, both inclusive, are as follows:

"October, 33 degrees; November, 8 degrees; December, 11 degrees below zero; January, 17 below zero; February, 15 below zero; March, 6 above; April, 20 above. The daily mean temperature fell and remained below the freezing point (32 degrees) from November 4, 1889, to April 21, 1890, thus giving 168 days as the length of the closed season of 1889-90, assuming that outdoor operations are controlled by temperature only. The lowest temperatures registered during the winter were 32 degrees below zero in November, 47 below in December, 59 below in January, 55 below in February, 45 below in March and 26 below in April. The greatest continuous cold occurred in February, 1890, when the daily

mean for five consecutive days was 47 degrees below zero.

"Greater cold than that here noted has been experienced in the United States for a very short time, but never has it continued so very cold for so long a time. In the interior of Alaska the winter sets in as early as September, when snowstorms may be expected in the mountains and passes. Headway during one of those storms is impossible, and the traveler who is overtaken by one of them is fortunate if he escapes with his life. Snowstorms of great severity may occur in any month from September to May, inclusive.

"The changes of temperature from winter to summer are rapid, owing to the great increase in the length of the day. In May the sun rises at about 3 a. m. and sets about 9 p. m. In June it rises at 1:30 o'clock in the morning and sets about 10:30 o'clock, giving about twenty hours of daylight, and diffuses twilight the remainder of the time. The mean summer temperature in the interior doubtless ranges between 60 and 70 degrees, according to elevation, being highest in the middle and lower Yukon valleys."

The average temperature at Fort Cudahy, as reported by the North American Transportation and Trading company, during the months of November, December, January and February last year, was very close to 20 degrees below zero. The average for November was 17½ degrees below zero; for December and January, 22 below, and for February about 20 below. The lowest temperature recorded was 70 degrees below zero. The temperature for the month of September was about zero.

The snowfall in the vicinity of Fort Cudahy is only about two feet during the winter, although it is as much

as twenty feet along the coast, where the influence of the Japan current is felt.

The mean temperature of the air and of the surface sea-water and the precipitation for each month of the year at Sitka are thus given by the United States coast and geodetic survey in its Alaska "Coast Pilots" of 1883 and 1891:

	Temp. of the air.	Temp. of surface sea-water.	Precipitation.
January	31.4	39.0	7.35
February	32.9	39.0	6.45
March	35.7	35.5	5.29
April	40.8	42.0	5.17
May	47.0	46.5	4.13
June	52.4	48.0	3.62
July	55.5	49.0	4.19
August	55.9	50.0	6.96
September	51.5	51.5	9.66
October	44.9	48.9	11.83
November	38.1	44.4	8.65
December	33.3	41.7	8.39
Year	43.3	45.0	81.69

Assistant Surgeon A. E. Wells of the Northwestern mounted police, in his report to the Canadian government, 1895, wrote: "It may be of interest to mention something concerning the climate, mode of living of the people generally, and diseases met with.

"The climate is wet. The rainfall last summer was heavy. Although there is almost a continuous sun in summer time, evaporation is very slow owing to the thick moss which will not conduct the heat, in consequence the ground is always swampy. It is only after several years of draining that ground will become sufficiently dry to allow the frost to go out, and then only for

a few feet. During the winter months the cold is intense, with usually considerable wind.

"A heavy mist rising from open places in the river settles down in the valley in calm extreme weather. This dampness makes the cold to be felt much more and is conducive to rheumatic pains, colds, etc.

"Miners are a very mixed class of people. They represent many nationalities and come from all climates. Their lives are certainly not enviable. The regulation 'miners' cabin' is twelve by fourteen feet, with walls six feet and gables eight feet in height. The roof is heavily earthed, and the cabin is generally very warm. Two, and sometimes three or four men, will occupy a house of this size. The ventilation is usually bad. Those miners who do not work their claims during the winter confine themselves in these small huts most of the time.

"Very often they become indolent and careless, only eating those things which are most easily cooked or prepared. During the busy time in summer when they are 'shoveling in,' they work hard and for long hours, sparing little time for eating and much less for cooking.

"This manner of living is quite common amongst beginners, and soon leads to debility and sometimes to scurvy. Old miners have learned from experience to value health more than gold, and they therefore spare no expense in procuring the best and most varied outfit of food that can be obtained.

"In a cold climate such as this, where it is impossible to get fresh vegetables and fruits, it is most important that the best substitutes for these should be provided. Nature helps to supply these wants by growing cranberries and other wild fruits in abundance, but men in summer are usually too busy to avail themselves of these.

"The diseases met with in this country are dyspepsia,

SNOW STORM IN THE MOUNTAINS.

anaemia, scurvy, caused by improperly cooked food, sameness of diet, overwork, want of fresh vegetables, overheated and badly ventilated houses; rheumatism, pneumonia, bronchitis, enteritis, cystitis and other acute diseases, from exposure to wet and cold; debility and chronic diseases due to excesses. One case of typhoid fever occurred in Forty Mile last fall, probably due to drinking water polluted with decayed vegetable matter.

"In selecting men to relieve in this country I beg to submit a few remarks, some of which will be of assistance to the medical examiners in making their recommendations.

"Men should be sober, strong and healthy. They should be practical men, able to adapt themselves quickly to their surroundings. Special care should be taken to see that their lungs are sound, that they are free from rheumatism and rheumatic tendency, and that their joints, especially knee joints, are strong and have never been weakened by injury, synovitis or other disease. It is also very important to consider their temperaments. Men should be of cheerful, hopeful dispositions and willing workers. Those of sullen, morose natures, although they may be good workers, are very apt, as soon as the novelty of the country wears off, to become dissatisfied, pessimistic and melancholy."

Numerous letters from Dawson City and Circle City speak of scurvy as a disease which in the winter time seems to be prevalent. In almost every instance the writer urges that lime-juice should form one of the essentials in the Klondiker's pack.

According to the accepted medical authority, scurvy is the result of an insufficient supply of potash salts, owing to an inadequate diet of fresh vegetables. But the mere administration of these salts will not prevent

or cure the disease, which is a dreadful one if not checked. The symptoms come on gradually, being recognized by a failure of strength and exhaustion at slight exertion. The countenance becomes sallow or dusky, eyes sunken, and constant pains are felt in all the muscles. After some weeks utter prostration ensues; the appearance is most haggard; great trouble is experienced with the mouth, sore gums, and teeth falling out; the breath is extremely offensive; finally come swellings and dark spots on the body, with bleeding from the mucous membrane; then painful, extensive and destructive ulcers break out on the limbs; finally diarrhoea, pulmonary or kidney trouble may give fatal result. But even in desperate cases a return to fresh vegetable diet will cure, as will also, usually, lime juice. Lime juice has driven scurvy from the ocean, where it once counted its dead in every far-going ship's annals. It is now a slang term to describe an old salt. Sailors at sea are given a small daily allowance of lime juice (which is generally badly adulterated), and they swallow it with a little water at meals.

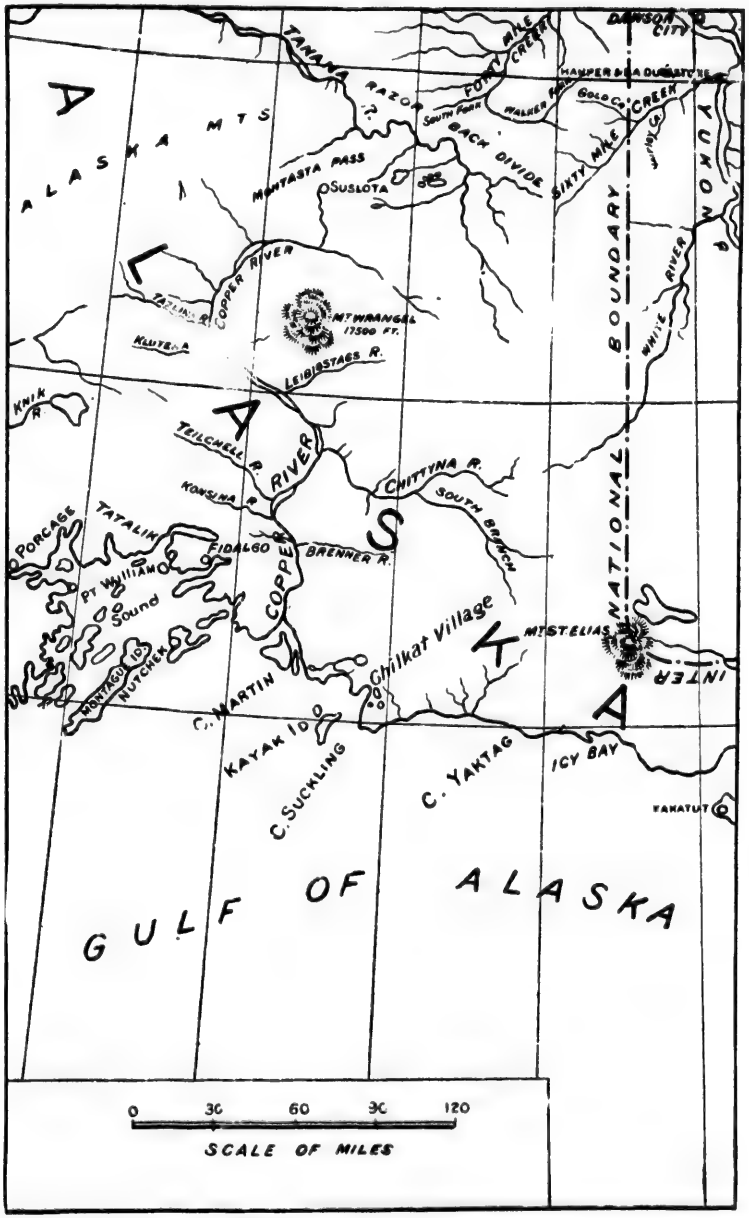
CHAPTER XVI.

PROF. SPURR'S REPORT.

EARLY in 1896 the United States government sent Prof. J. S. Spurr, H. B. Goodrich and F. C. Schrader, of the Geological Survey, into the Yukon district. The chief of the survey was Prof. Spurr. Soon after the news from the Klondike was received in this country Prof. Spurr anticipated the report he is to make to the chief of his department by writing a statement for the information of those who were seized with the gold fever. The statement reads as follows:

"Much has been written of late concerning the possibilities of Alaska as a gold-producing country. As a matter of fact, the production of the present year may be roughly estimated at $3,000,000; this amount, however, comes from an immense region of half a million square miles, or about one-quarter as large as the United States. Of the mines which produce this gold, some are in the bed-rock, while others are placer diggings.

"The bedrock mines are few in number and situated on the southeast coast, which is the most accessible part of the territory. The chief one is the great Treadwell mine near Juneau, and there are also important mines at Berner's bay, at the Island of Unga and other places. The latest strike is the Klondike. Most of these mines, however, are in low-grade ore, and the production is only made profitable by means of careful management and operations on a very large scale.



COPPER RIVER, GOLD DISTRICT.

"The placer mines are those which occupy the most prominent place in the popular mind, since they are remote from civilization and in a country about which little is known, and which is, on account of this uncertainty, dangerously attractive to the average man. This gold-producing country of the interior is mostly in the vicinity of the Yukon river or of some of its immediate tributaries.

"The most productive districts before the Klondike discovery have been the Forty Mile district, which lies partly in American and partly in British territory, and the Birch creek district, which lies in American territory. Some gold diggings are also supposed to exist on Stewart river, and some gold has been shipped from the Koykuk. During the latter part of the past season diggings were also found on the Klundek and Indian rivers near Forty Mile.

"Another place concerning which there have been many vague rumors of gold, causing a stampede of many unprepared and unfitted men, is the Cook Inlet country, which lies on the coast above the mouth of Copper river, a situation remote alike from the mines near Juneau and from the placer mines on the Yukon.

"In all this immense country over which placer digging is carried on, or has been carried on, I estimate that there are about 2,000 miners. They are mostly in the Yukon districts. These districts lie in a broad belt of gold-producing rocks, having a considerable width and extending in a general east and west direction for several hundred miles. Throughout this belt occur quartz veins which carry gold, but so far as yet found the ore is of low grade, and a large proportion of the veins have been so broken by movements in the rocks that they cannot be followed. For this reason the mines in the bed

rock cannot be worked, except on a large scale with improved machinery, and even such operations are impossible until the general conditions of the country, in reference to transportation and supplies, are improved.

"Through the gold-bearing rocks the streams have cut deep gullies and canyons, and in their beds the gold which was contained in the rocks which have been worn away is concentrated, so that from a large amount of very low-grade rock there may be formed in places a gravel sufficiently rich in gold to repay washing. All the mining which is done in this country, therefore, consists in the washing out of these gravels.

"In each gulch on the American side prospectors are at liberty to stake out claims not already taken, the size of the claims being determined by vote of all the miners in each gulch, according to the richness of the gravel. The usual length of a claim is about 500 feet along the stream and the total width of the gulch bed, which is ordinarily narrow. When a prospector has thus staked out his claim, it is recorded by one of the miners, who is elected by his fellows in each gulch for that purpose, and this secures him sufficient title. The miners' laws are practically the entire government in these districts, for the remoteness prevents any systematic communication being carried on with the United States. All questions and disputes are settled by miners' meetings, and the question in dispute is put to popular vote.

"In prospecting the elementary method of panning is used to discover the presence of gold in gravel, but after a claim is staked and systematic work begun, long sluice boxes are built of boards, the miners being obliged to fell the trees themselves and saw out the lumber with whip saws, a very laborious kind of work.

"The depth of gravel in the bottom of the gulches

varies from a foot up to twenty or thirty feet, and when it is deeper than the latter figure it cannot be worked. The upper part of the gravel is barren, and the pay-dirt lies directly upon the rock beneath, and is generally very thin. To get at this pay-dirt all the upper gravel must be shoveled off, and this preliminary work often requires an entire season, even in a very small claim. When the gravel is deeper than a certain amount—say ten feet—the task of removing it becomes formidable. In this case the pay-dirt can sometimes be got at in the winter season when the gravels are frozen hard by sinking shafts through these gravels and drifting along the pay-dirt.

"The pay-dirt thus removed is taken to the surface and washed out in sluices when the warm weather begins. This underground working is done by burning instead of blasting and picking. A fire is built close to the frozen gravel, and when it is sufficiently thawed it is shoveled out and removed. The stripping off of the upper gravels, which has been mentioned, can be done only in the comparatively short summer season when the surface thaws.

"The ordinary method of getting into the Yukon country is by crossing the Chilkoot Pass from Juneau down the Lewes and Yukon rivers to the gold districts. The usual time for starting is in April, and a large part of the journey is made over ice which fills the lakes and rivers at this time of year. By this early starting a large part of the season available for working is obtained. Not every comer can find new diggings which are profitable, and many of them are glad to work for wages.

"The ordinary wages in summer are $10 per day, but sixty days is considered about the average for summer work; so that the total earnings are not so great as will

appear at first sight, and the prospects for work during the remainder of the year are slight. The journey over the pass and down the Yukon is one of great difficulty and hardship, especially as all supplies have to be carried along. The pass itself is difficult to cross, the lakes are subject to violent gales, and there are a number of very dangerous rapids. Once in the country the newcomer finds himself no more comfortable.

"During the summer season, when the days sometimes are really hot, there are swarms of mosquitoes and gnats which have not their equal in the world, and which are enough alone to discourage most men. I have heard stories, which I can readily believe to be true, of strong and hardy men being so tormented by these pests while on the trail through the swamp to the Birch creek diggings, that they broke down and sobbed in utter disgust. The method of reaching these and other diggings consists partly in pulling a loaded boat against a swift stream, and often over rapids, and partly in trudging through the swamp or over a rough mountain trail with a heavy load on one's back. In winter the thermometer falls so low that it cannot be measured by any available means. It is certain, however, that it reaches 70 degrees below zero. During all this winter season very little can be done, and as darkness exists most of the time life often seems intolerable.

"The actual expenses of getting into the country are considerable. Indians must be hired to do a part or the whole of the transportation of supplies across the Chilkoot Pass at very high wages, and the cost of the necessary outfit is in itself considerable. On arriving at the diggings provisions are often not obtainable at any price; or, if they are to be had, the variety is slight. The sup-

ply is always uncertain, depending upon the lateness of the spring and of the fall.

"Owing to the difficulty in bringing in supplies, prices are very high at the river posts, and much higher in the diggings. The freight alone from the coast to the diggings costs as high as 50 cents a pound, so that when one eats potatoes at $1 a pound and bacon at 85 cents a pound, other things in proportion, the cost of living is enormous, and even employment at $10 per day for sixty days out of the year will not enable a man to grow rich very rapidly. Even employment for wages, moreover, is scarce, there being several applicants for every job. Owing to the high price of supplies, no claim that does not pay at least $10 a day to each man working can be worked except at a loss. Many competent men who engage in mining here and work faithfully experience failures, and are unable to earn enough to buy provisions.

"In such a situation it is very difficult to make one's way out of the country, for the journey up the river along the usual route requires upward of thirty days' hard work, and provisions must be brought for the trip. The trip down the river and back to civilization by steamer is very expensive, and of late years the number seeking to get out in that way exceeded the carrying capacity of the few steamers. Last year fully 150 men who wished and intended to leave the country by steamer were unable to do so, and are still there.

"Under the conditions which now exist there are quite enough in the Yukon district already, and the object of this article is to discourage people from rushing there without due consideration. Probably ninety-nine out of every hundred men are unfitted by nature for such a life as Yukon mining necessitates, and had much better never

make the attempt. The hundredth man must be a miner and frontiersman by nature, strong and patient, a hard worker, and a lover of secluded life. Even such a man will very likely fail on account of the large element of chance, and the most successful miner obtains only a few thousand dollars in profit after a number of years' patient work.

"Any great increase in the number of men going into the Yukon district would be disastrous, on account of the strict limits of the food supply and facilities for transportation. The result would be famine, disorder, and failure. Several years ago this actually happened when all the Forty-Mile miners were without food and were obliged to travel down the Yukon over the ice to St. Michael in the dead of winter, a terrible journey of nearly 2,000 miles. At that time there were only a few men in the country, but if the number had been very much larger, even this resource would have been impossible.

"My general advice to the average man intending to go to the Yukon gold district is—to stay out. Many men go there every year and suffer hardships, failure, loss of capital and sometimes of health. If anyone undertakes the trip he should take with him enough supplies to last as long as he intends to stay—one year, two years, or whatever amount. He should have money enough to last him into the country and out again, if necessary, and should start early enough in the season to enable him to return up the river if he intends to come out the same year, for the facilities for transportation by steamer are likely to be entirely inadequate."

NOTE.—Since Prof. Spurr sounded this note of warning a small army of Klondikers has started for the gold fields. Reports from Dawson City indicate that the labor market is glutted by miners who left other diggings

for the Klondike, and that day wages dropped from $10 and $15 to $2 and $3.

In speaking of the mining conditions of Alaska, Mr. Spurr said:

"We examined all of the known placer deposits and the origin of the gold in them was traced to the veins of quartz along the head waters of the various streams entering the Yukon. Sufficient data were secured to establish the presence of a gold belt 300 miles in length in Alaska, which enters the territory near the mouth of Forty Mile creek and extends westward across the Yukon valley at the lower ramparts. Its further extent is unknown.

"It is the opinion of the geologist in charge of the expedition that it is entirely practicable to prosecute quartz mining throughout the year in this region. He also discovered along the river large areas or rocks containing hard bitumious coal.

"Running in a direction a little west of northwest through the territory examined is a broad, continuous belt of highly altered rocks. To the east this belt is known to be continuous for 100 miles or more in British territory. The rocks constituting this belt are mostly crystalline schists, associated with marbles and sheared quartzites, indicating a sedimentary origin for a large part of the series. These altered sedimentary rocks have been shattered by volcanic action, and they are pierced by many dikes of eruptive rocks.

"In the process of mountain building the sedimentary rocks have been subjected to such pressure and to such alteration from attendant forces that they have been squeezed into the condition of schist, and often partly or wholly crystallized, so that their original character has in some cases entirely disappeared. In summarizing, it may

be said that the rocks of the gold belt of Alaska consist largely of sedimentary beds older than the carboniferous period, that these beds have undergone extensive alteration, and have been elevated into mountain ranges and cut through by a variety of igneous rocks.

"Throughout these altered rocks there are found veins of quartz often carrying pyrite and gold. It appears that these quartz veins were formed during the disturbance attending the uplift and alteration of the beds. Many of the veins have been cut, sheared and torn into fragments by the force that has transformed the sedimentary rocks into crystalline schist, but there are others, containing gold, silver and copper, that have not been very much disturbed or broken.

"These more continuous ore-bearing zones have not the character of ordinary quartz veins, although they contain much silica. Instead of the usual white quartz veins, the ore occurs in a sheared and altered zone of rock, and gradually runs out on both sides. So far as yet known, these continuous zones of ore are of relatively low grade. Concerning the veins of white quartz first mentioned, it is certain that most of them which contain gold carry it only in small quantity, and yet some few are known to be very rich in places, and it is extremely probable that there are many in which the whole of the ore is of comparatively high grade.

"The general character of the rocks and of the ore deposits is extremely like that of the gold-bearing formations along the southern coast of Alaska, in which the Treadwell and other mines are situated, and it is probable that the richness of the Yukon rocks is approximately equal to that of the coast belt. It may be added that the resources of the coast belt have been only partially explored.

"Since the formation of the veins and other deposits of the rocks of the gold belt an enormous length of time has elapsed. During that time the forces of erosion have stripped off the overlying rocks and exposed the metalliferous veins at the surface for long periods, and the rocks of the gold belt, with the veins which they include, have crumbled and been carried away by the streams, to be deposited in widely different places as gravels, or sands, or mud. In Alaska the streams have been carrying away the gold from the metalliferous belt for a very long period, so that particles of the precious metal are found in nearly all parts of the territory.

"It is only in the immediate vicinity of the gold-bearing belt, however, that the particles of gold are large and plentiful enough to repay working under present conditions. Where a stream heads in the gold belt the richest diggings are likely to be near its extreme upper part. In this upper part the current is so swift that the lighter material and the finer gold are carried away, leaving in many places a rich deposit of coarse gold overlaid by coarse gravel, the pebbles being so large as to hinder rapid transportation by water.

"It is under such conditions that the diggings which are now being worked are found, with some unimportant exceptions. The rich gulches of the Forty Mile district and of the Birch creek district, as well as other fields of less importance, all head in the gold-bearing formation.

"A short distance below the heads of these gulches the stream valley broadens and the gravels contain finer gold, more widely distributed. Along certain parts of the stream this finer gold is concentrated by favorable currents, and is often profitably washed, this kind of deposit coming under the head of 'bar diggings.' The gold in these more extensive gravels is often present in sufficient

quantity to encourage the hope of successful extraction at some future time, when the work can be done more cheaply and with suitable machinery. The extent of these gravels, which are of possible value, is very great.

"It may be stated, therefore, as a general rule, that the profitable gravels are found in the vicinity of the gold-bearing rock. The gold-bearing belt forms a range of low mountains, and on the flanks of these mountains, to the northeast and to the southwest, lie various younger rocks which range in age from carboniferous to very recent tertiary, and are made up mostly of conglomerates, sandstones and shales, with some volcanic material. These rocks were formed subsequent to the ore deposition, and therefore do not contain metalliferous veins.

"They have been partly derived, however, from detritus worn from the gold-bearing belt during the long period that it has been exposed to erosion, and some of them contain gold derived from the more ancient rocks and concentrated in the same way as is the gold in the present river gravels. In one or two places it is certain that these conglomerates are really fossil placers, and this source of supply may eventually turn out to be very important."

The report on the Yukon gold region by Mr. Spurr, giving new facts and figures about the interior of the territory, was made public recently. It is a comprehensive document, and reviews in detail the work in the various districts. It says as to the Forty Mile gold district, that in the latter part of 1887 Franklin gulch was struck, and the first year the creek is estimated to have produced $4,000. Ever since it has been a constant payer. The character of the gold there is nuggety, masses worth $5 being common. The yield the first year after the discovery of Forty Mile has been variously estimated at

SLUICING.

from $75,000 to $150,000, but $60,000 probably covers the production.

The discovery of Davis creek and a stampede from Franklin gulch followed in the spring of 1888. In 1891 gold mining in the interior as well as on the coast, at Silver Bow basin and Treadwell, received a great impetus. The chief occurrence of 1892 was the discovery of Miller creek. In the spring of 1893 many new claims were staked, and it is estimated that 80 men took out $100,000. Since then Miller creek has been the heaviest producer of the Forty Mile district, and, until recently, of the whole Yukon. Its entire length lies in British possessions. The output for 1893 as given by the mint director for the Alaskan creeks, all but Miller creek being in American possessions, was $198,000, with a mining population of 196.

The total amount produced by the Yukon placers in 1894 was double that of the previous year, and was divided between the two districts. In 1895 the output had doubled again.

Forty Mile district in the summer of 1896 is described in the report as looking as if it had seen its best days, and unless several new creeks are discovered it will lose its old position.

The Birch creek district was in a flourishing condition last summer (1896). Most of the gulches were then running, miners were working on double shifts, night and day, and many large profits were reported. On Mastodon creek, the best producer, over 300 miners were at work, many expecting to winter in the gulch.

As to hydraulic mining, the report says: "Some miners have planned to work this and other good ground supposed to exist under the deep covering of moss and gravel in the wide valley of the Mammoth and Crooked

creeks by the hydraulic process, the water to be obtained by tapping Miller and Mastodon creeks near the head. It will be several years before the scheme can be operated, because both of the present gulches are paying well, and will continue to do so at least five years."

The Klondike placer miners are only gathering the dust washed off nature's great gold reserve in the Alaskan mountains. This dust is found in the gravel of the little streams. It comes from a formation called the conglomerate, which is incomparably richer in nuggets and particles of gold than the gravel. When the miners find it no longer profitable to wash out the gravel, they can attack the conglomerate, where they will be able to accomplish something by hand labor. Finally, there is the original source of gold—the veins in the hills. These must be of enormous value. They must lie untouched until the proper machinery for obtaining the gold is erected.

A clear, scientific and authoritative explanation of the geological conditions of the Klondike and neighboring gold-bearing rocks was furnished by Professor S. F. Emmons, of the United States geological survey, to the New York Herald. Professor Emmons said:

"The real mass of golden wealth in Alaska remains as yet untouched. It lies in the virgin rocks, from which the particles found in the river gravels now being washed by the Klondike miners have been torn by the erosion of streams. These particles, being heavy, have been deposited by the streams which carried the lighter matter onward to the ocean, thus forming by gradual accumulation, a sort of auriferous concentrate. Many of the bits, especially in certain localities, are big enough to be called nuggets.

"In spots the gravels are so rich that, as we have all

heard, many ounces of the yellow metal are obtained from the washing of a single panful. That is what is making the people so wild—the prospect of picking money out of the dirt by the handful literally.

"But all this is merely the skimming of grease from the pot; the soup remains, the precious rich soup it is. The bulk of the wealth is in the rocks of the hills, waiting only for proper machinery to take it out. For you must remember that the gold was originally stored in veins of the rocks, which are of an exceedingly ancient formation. Nobody can say how many millions of years ago the metal was put there, but it must have been an enormously long time back.

"The streams wore away the rocks, carrying gold with them, and this process continued for ages, making immense deposits of rich, gold-bearing gravels. Eventually these deposits were themselves transformed into rock—a sort of conglomerate in which pebbles small and big are mixed with what was once sand. To-day the strata composed of this conglomerate are of immense extent and unknown thickness. The formation closely resembles that of the auriferous 'banket' or pudding stone of the South African gold fields; but the South African pudding stone was in far remote antiquity a sea beach, whereas the Alaskan formation is a deposit made by steams, as I have said.

"In a later epoch the stream continued to gnaw away at the hills, bringing down more gold and leaving it behind in the gravels of their bottoms. It is these comparatively modern rivers which are responsible for the pay dirt of the Klondike district and of all that region. Naturally, because it was easily got at and worked, the miners have struck this surface alluvium first. The streams at various times have followed different courses, and it is

in the gravels of the dry and disused channels that the gold miners dig with such fabulous profit.

"You will observe from what I have said that the gold of that region exists under three widely different conditions—in the gravels, in the conglomerate or pudding stone and in the ancient rocks of the hills. When the modern stream deposits, now being worked, are used up, the miner can tackle the conglomerate, which represents the gravels of ages ago. Finally, when they are provided with the requisite machinery, they will be in a position to attack the masses of yellow wealth that are stored in the veins of the mountains. At present we can hardly consider that the first bite has been taken of the golden feast which Alaska offers to hungry man."

For many years Indians have brought out of the Copper river district in Alaska furs, copper and gold. The Copper Indians are a ferocious tribe, much resembling the Sioux in stature, and during the last few years have become well equipped with guns and ammunition. Knowing the value of their rich stakes, and that the ingress of white men would mean their retirement, the Indians have steadfastly refused to permit a single white man to explore their country. Every man making the attempt has been told to keep out, and when he persisted has been killed.

The Copper river tribe numbers nearly 1,000, and as they have been well able to carry out their threats, no attempt to molest them has been made in recent years. Now, however, it is proposed to teach these natives that white men must eventually be allowed to prospect and take out the mineral riches of their domain.

One hundred men, thoroughly armed, will go to Cook inlet from Port Townsend. They will be led thence into the Copper river section by Judge Joseph Kuhn, who has

been collecting data regarding Copper river for years and was the originator of the project. Capitalists, it is said, are advancing part of the money required, but to make the success more certain the expedition is being organized on a co-operative basis, so each man will have a direct interest. Each man enlisting is required to put up several hundred dollars, which goes to a common fund with which to buy a schooner, arms and supplies for two years. The Indians will not be molested unless they attack the exploring party. Traditions of the last sixty years have ascribed great mineral wealth to the Copper river country. At Sitka it is said that in 1831 a Russian trader invaded that section with eight men. They were killed when within a two days' march to the seacoast.

CHAPTER XVII.

MAIL SERVICE IN THE KLONDIKE.

DAILY mail deliveries are something that can scarcely be expected by the Klondikers. Arrangements, however, have been made to carry the mail between "home" and the gold diggings in the Yukon district. A mail service has been established between Juneau and Circle City, and doubtless this soon will be extended to the Klondike district. As the mails pass backwards and forwards across the boundary line, postage paid in the United States takes mail across the boundary line, and vice versa.

Postmaster Charles U. Gordon of Chicago, in response to a request from the CHICAGO RECORD for information regarding the sending of letters to the Klondike region, replied:

"Letters cannot be sent by United States mail to Dawson City, Forty Mile or other towns in British territory. Mail matter for Dawson City, Northwest territory, not being a known postoffice, should be addressed 'via' some United States postoffice, viz: Dyea, Alaska; Unalaska, or Circle City, Alaska. Sent to one of these Alaskan postoffices, it goes to Circle City by way of Dyea, over the overland route; by way of Unalaska by the Yukon route.

"A mail steamer leaves Seattle every five days for Juneau, 120 miles from Dyea, and every fourteen days from Sitka for Unalaska. A Canadian Pacific steamer

will leave Victoria for Dyea, by way of Juneau, every few weeks during the fall. The route overland by way of Edmonton, Northwest territory, is not feasible, as yet, although there appears to be some travel coming this way."

Five carriers have been appointed for the Juneau-Circle City route, and one will leave each end of the mail route on or about the first of each month. The carriers are P. C. Richardson, F. W. Hoyt, J. W. Demars, G. P. Sproul and John Brauer. This mail service is for United States mail addressed to Circle City. Mail of Dawson, Forty-Mile and Fort Cudahy will not be carried in this mail, as these points are in Canadian territory. Communication with these points is irregular and difficult, but arrangements have been made to forward mail from Circle City by the Arctic express company.

The schedule for carriers between Juneau and Circle City is as follows:

Date.	Juneau.	Circle City.
August	Demars	Hoyt
September	Sproul	Brauer
October	Hoyt	Demars
November	Brauer	Sproul
December	Demars	Hoyt
January	Sproul	Brauer
February	Hoyt	Demars
March	Brauer	Sproul
April	Demars	Hoyt
May	Sproul	Brauer
June	Hoyt	Demars

Since July 1, contracts for mail over what is known as "the overland route" from Juneau to Circle City have been made by the postoffice department. The round trip over the Chilkoot pass and by way of the chain of lakes

and the Lewes river takes about a month, the distance being about 900 miles. The cost is about $600 for the round trip. The Chilkoot pass is crossed with the mail by means of Indian carriers. On the previous trips the carriers, after finishing the pass, built their boats, but they now have their own to pass the lakes and the Lewes river.

In the winter transportation is carried on by means of dog sleds, and it is hoped that under the present contracts there will be no stoppage, no matter how low the temperature may go. The contractor has reported that he was sending a boat, in sections, by way of St. Michael, up the Yukon river, to be used on the waterway of the route, and it is thought much time will be saved by this, as in former times it was necessary for the carriers to stop and build boats or rafts to pass the lakes.

In addition to this for the summer season contracts have been made with two steamboat companies for two trips from Seattle to St. Michael, and three from there to Seattle. When the steamers reach St. Michael, the mail will be transferred from the steamers to the flat-bottomed boats running up the Yukon as far as Circle City. It is believed the boats now run further up.

The contracts for the overland route call for only first-class matter, whereas the steamers in the summer season carry everything up to five tons a trip.

Some extracts from the official report of the second assistant postmaster general for the fiscal year ending June 1, 1896, will prove of interest. Under date of September 23, 1896, Contractor Beddoe wrote to the department concerning the trip to Circle City, the establishment of that postoffice having been authorized March 19, 1896.

He says: "I have just returned from my first round trip through to Circle City with the United States mail, under contract route No. 78103, and in accordance with your instructions, corroborating those received through the superintendent of the Pacific coast, at Seattle, I delivered the return mail from Circle City to the postmaster at Seattle and accompanied to Juneau such mail as remained for that point.

"I have already delivered (or have en route) the mail for June, July, August and September. It will be impossible for any other mail to leave here until spring, outside of the winter contract.

"If you were familiar with the conditions which obtain in the Yukon you would be in a better position to regulate the dates of departure and arrival for said service. For instance, I left this point (Juneau) on June 10 for Dyea; for sixteen hours it was impossible to land owing to storms, and as the landing is made in small boats, the conditions must be favorable. I took with me sufficient lumber to build two boats; the ones I had already built could not be taken over the summit in consequence of excessive snow storms. Upon my arrival at the base of the summit the Indian packers refused to go over with the lumber. I was compelled to abandon it there, having paid $67.50 for packing it.

"The packing of supplies, etc., cost $320 additional. However, I pushed on and upon arriving at Lake Lindeman, a distance of thirty miles, I built a raft, there being no lumber in that locality, and upon this raft we journeyed to Lake Bennett, where we found sufficient lumber to build a boat. A start was made in five days after arrival, although the lumber had to be cut from the trees, and from there on we traveled day and night until our

destination, Circle City, was reached and the mails delivered in good order.

"The question now was to get the return mail to Juneau the quickest moment. It was impossible to start up the river in consequence of the rapid water, the current averaging eight miles an hour for 500 miles. If I remained in Circle City until July 30 it would probably take forty-five days to pole the boat up the river. I therefore decided to go down to St. Michael and come out through Bering sea. I was fortunate in getting there in time for the steamship Portland, which sailed from that point to Seattle, via Unalaska—3,500 miles. At Seattle I took the Alki and reached here in due course, having traveled 6,500 miles in addition to the regular trip, and saving thereby over a month of time in the delivery of the return mail; and I owe it to myself to say that I was the last trip man into the Yukon and the first one out this season, which is evidence that no unnecessary delay occurred.

"This Yukon trip is a terrible one, the current of the river even attaining ten miles an hour. Miles canyon is a veritable death trap into which one is likely to be drawn without notice, and the White Horse rapids, known as the miners' grave, to say nothing of the Five Fingers and Rink rapids, both of which are very dangerous. All of these dangers are aggravated by reason of the defective maps and reports of the country.

"It is my intention to submit to the department a map with many corrections, although in the absence of a proper survey it will necessarily be only an approximate reflection of the river's course. You are probably not aware that for a distance of 150 miles, commencing at Circle City, and going north, the river is fifty miles be-

tween banks, and contains thousands of islands, very few of which appear on any map.

"It is impossible to perform this mail contract without having at least three parties fully equipped, the distance being so great and it being out of the question for the first party to return in time to depart with the succeeding mail, and the expense of each will be about the same. I shall have made four round trips by the end of this month. The last mail in should arrive at Circle City in one week from now. The return mails I am looking for daily. At the end of this month the north end of the Yukon river will freeze and the ice will gradually form to the south, and the same, as a waterway, will become impassable and remain so until midwinter."

The Western Union telegraph company is considering the advisability of stringing a wire from Juneau to Dawson City. A San Francisco company has been formed for the purpose of connecting Juneau and Dawson City with a telegraph and telephone wire. The line, according to the plan, is to be constructed on the same plan as the ordinary military line used by armies in the field. The wire will be a quarter of an inch thick, and covered with a certain kind of insulation which it is said has proved thoroughly able to withstand the rigorous climatic conditions prevailing in Alaska. The wire is to wind upon large reels, and these reels are to be placed on dog sleds and dragged over the ice and snow. It is proposed simply to pay out the loose wire and let it lie on the ground, with the expectation of running the line through from terminal to terminal in six weeks.

The route by way of Chilkoot and the Lewes and Yukon as far as the Pelly river has been thoroughly explored by the Western Union telegraph company. Mike

LeBarge, after whom Lake LeBarge was named, was engaged by the company to explore the river and adjacent country for the purpose of connecting Europe and America by telegraph through British Columbia and Alaska and across Bering strait to Asia, and thence to Europe. This exploration took place in 1867, but the successful laying of the Atlantic cable in 1866 put a stop to this project.

CHAPTER XVIII.

LIFE IN DAWSON CITY.

ACCORDING to men who have returned from the Klondike country, the values attached to flour, meats, eggs, sugar, etc., by Dawson City traders are not so "steep" as some reports have indicated. Hundreds of stories about high prices in Dawson City have gone the length and breadth of the country since the Klondike fever broke out, and Joseph Ladue, the founder of Dawson City, and the owner of the townsite, takes exceptions to what he calls "exaggerations." He says that prices in Dawson City, everything considered, are reasonable. Following is a Dawson City price list:

Flour, per 100 lbs	$ 12 00
Sugar, brown, per pound	20
Sugar, granulated, per pound	25
Rice, per pound	20
Oatmeal, per pound	25
Bacon, per pound	1 50
Condensed milk, per can	60
Butter, per pound	1 50
Eggs, per dozen	5 00
Beans, per pound	12½
Salt, per pound	15
Dried fruit, per pound, 25 to	30
Apricots (dried) per pound	35
Cigars, single	50
Cigars, wholesale, per 1,000, $95 to	100 00
Tobacco, chewing and smoking, per pound	1 50
Tobacco, plug cut, per pound	2 00

Blankets, good, per pair, from $16 to	30 00
Hudson Bay blankets	30 00
Linen shirt	5 00
Underwear, per suit	10 00
Canvas overalls	2 50
Boots, from $10 to	12 00
Stogie shoes, from $5 to	7 50
Clothes, suit ready made, from $30 to	50 00
Fur overcoats, from $25 to	100 00
Dogs for sleds, from $100 to	300 00
Home-made bread, per loaf	50
Lumber, per 1,000 feet, from $100 to	200 00
Wages, per day, $5 to	6 00
Meals in restaurant, each	1 50

A dressmaker, who was in Circle City when the "strike" on the Klondike was made, went to Dawson City, and in the first three days cleared $90 with her needle. Mrs. Adams, the dressmaker, said she was the first woman in the diggings that could fit a dress, and while there were no "bones" or "waist binding or canvas" or other articles about which women know everything and which go into a dress, Mrs. Adams said prices are kept up, ranging about as follows: Five to ten dollars for a plain Mother Hubbard, $6 to $12 for an empress, $8 for a plain wool skirt, $10 to an "ounce" for a waist. These prices were simply for making the goods up, and Mrs. Adams said she and her partner had more work than they could do.

Dawson City is located on the bank of the Klondike where the latter stream empties into the Yukon river. The town site of 160 acres is owned by Joe Ladue, and Dawson City is laid out in a square, and divided into city lots after the most improved manner of the real estate dealer who plats new subdivisions. The population is unknown. Good guessers put the number of inhabitants of this mushroom town anywhere from 3,000 to 15,000. Sometime next spring it will be known just what the winter

population of Dawson City has been during the winter. The city was born in August, 1896, a few days after the Klondike strike was made. Many people are under the impression that Dawson City is in the very center of the rich placer deposits of the Klondike district, when as a matter of fact, the gold bearing creeks are from 12 to 25 miles from Dawson City.

Dawson City is a Canadian town, although its founder and most of its inhabitants are qualified voters in the United States when they are at home. Dawson City is not only a mushroom town, but, to use another simile borrowed from the vegetable kingdom, it is a "sucker" town. When it sprung up Circle City, Forty Mile, Fort Cudahy, and other mining towns north of it were depopulated so rapidly that no one save the agents of the transportation and trading companies and the Hudson's Bay company were left.

Every man, woman, child and dog scurried to Dawson City as fast as possible. Before the establishment of Dawson City there were 1,500 people in Circle City. A recent letter from Circle City relates the sad fact that there are three men, two women, one child and four yellow curs left. From all reports Dawson City is an orderly place, all things considered. The Northwest territory mounted police and the Canadian land officials thus far have succeeded in maintaining law and order to a degree that can scarcely be appreciated by one who is familiar with the so-called "typical" mining towns.

The people as a rule are law-abiding and attend to their own business. In fact all are too busy looking after wealth to resort to any lawlessness. Joe Ladue, the father of Dawson City, is authority for the statement that stealing is practically unknown in that town. Gold dust, grains and nuggets are kept in tin cans, iron kettles, worn out

rubber boots, oil cans, and left in tents and cabins without watch or guard being placed over them. This was the Dawson City up to the time the flood of gold-seekers overwhelmed it this year. The Canadian authorities believe that they will be able to smash all traditions, so far as mining towns are concerned, by making and keeping Dawson City a highly moral frontier town.

Joseph Ladue, the owner of Dawson City, is one of the fortunate men who made a large strike. He says he does not know how much he is worth, but those who are associated with him place his figures up among the millions. He is a resident, when at home, of Schuyler Halls, Clinton county, New York. He has great hopes for the future of the city he owns. In speaking of his possessions Ladue said that the summer for Dawson City opens about May 15 and by June 1, no snow is seen anywhere.

Grain is planted or sown about May 15, and he has raised barley and oats there for two years. Potatoes do not mature in Dawson. On the highlands the frost strikes everything each year. So the farming is all done on the islands. McQuestion, the Hudson's Bay trader at Forty Mile, has raised potatoes, barley, oats, turnips, lettuce, radishes and cabbage. He sells his produce to the miners and gets good prices for it. Turnips, for instance, bring ten cents a pound. At Ft. Selkirk, 178 miles south of Dawson, is another garden, owned and cultivated by Harper, sometimes called the "grand old man of the Yukon."

The summer lasts from the middle of May to September 1. The longest day in Dawson City is June 22; on that day the Klondikers have the sun for twenty hours, "clear, warm sun," as Joe Ladue expressed it. Winter sets in September 1, and the cold comes on gradually. September and October weather is fine, October being

about as November is in the United States. After that everything is closed up, including the Yukon river, which freezes over between November 1 and 10, and it is not navigable after that time until the next spring. The ice in the river freezes five and a half feet thick.

They have bath tubs in Dawson City, "real zinc bath-tubs," according to Joe Ladue, and it costs a Klondiker $1 a bath in a barber shop. But the prospector, who has a thrifty nature and is saving his cash, seldom patronizes these dollar a bath tubs. He takes a Russian bath for nothing. The Russian bath houses are made out of logs, an arch of stones is made on the floor of the house and a fire built under until the stones are red hot. The door is closed tight, and a barrel of water is thrown over the stones until the hot steam fills the room, and the Klondiker walks around with every pore wide open, dripping with perspiration. As Joe Ladue puts it, "it is a good sweat bath and is all right too for cleaning."

Several preachers are on their way to the Klondike, but the church of England has one of its clergymen on the ground. Bishop Bompas is at the head of the diocese which includes the Klondike district, and an episcopal clergyman officiates in Dawson City. When Ladue left Dawson City he was told that Bishop Bompas intended to move from Forty Mile to the metropolis of the Klondike.

Men who have returned from Dawson City tell great tales of the magnificence of the bars over which the several kinds of drinks in vogue in Dawson are served. One of the bars cost $750 in San Francisco before it was loaded on the ship, and another one is said to be equally as expensive. The dance hall is a frame building covered with white drilling. It is about 80 feet long and 40 feet wide. The orchestra consists of a horn, a violin, and a

piano, and everything is 50 cents a drink. There were 10 saloons and only 3 restaurants in Dawson City when Ladue left. One of the restaurants was an attachment to a barber shop.

A *table d'hote* dinner cost $1.50 and consists of bacon, beans, bread, coffee, a piece of cheese and dried fruit. And the restaurant keepers sell everything that can be made into a warm meal for the miners who have been living on hardtack and salt pork for several months. The laundries charge 25 cents a piece for everything that goes into the washtub, from towels to blue shirts. The stewardess on the steamer Willipaw forsook the raging Yukon and took to washing in Dawson City, and she did first rate. She also started a bake-shop, and one small loaf of her home made bread sold for 50 cents.

Gambling is carried on at Dawson City to suit all conditions of persons; no stake less than a dollar is allowed and jackpots frequently run up to enough "ounces" of gold dust to represent several thousands of dollars. It is claimed that there has not been even a first-class fist fight over a gambling game in Dawson City since Joe Ladue laid out the town site. From all accounts gambling is all "straight" in Dawson City, for cheating is regarded as akin to stealing, and stealing is put down as a worse crime than murder in that section of the globe.

The Canadian authorities have established a postoffice at Dawson City. This makes three Canadian postoffices in that portion of the Northwest territory. The other two offices are at Forty Mile and Fort Cudahy. The mail is carried by the mounted police from Dyea.

Robert Krook, a Swedish Klondiker, tells stories somewhat different from the average of those that have come from the lips of returned miners. He said:

"Until this spring the men never put locks on the doors

of their cabins, and nothing was stolen. You might go into any cabin and see a glass or a tin or two on the shelf full of gold and no one would think of touching it. Anyone could steal if he wanted to do so, but there were reasons why they did not. It was only after the mounted police arrived that locks and bolts became a necessity. Before that there were what we called 'miners' laws.' Forty or fifty of the miners would call a meeting, select a chairman, and then if a man could make his own 'talk' he did so or he would get some one to make it for him. When both sides of the case had been heard the chairman would call for a vote. The decision was final. If a man gave trouble he had to go. Now they do not have miners' laws any more. We had no trouble during three years, because all questions were settled at these meetings of miners. All disputes about claims were argued and adjudicated in the same way."

Some amusing details were given of the way in which the men spend the long nights in the winter. As each claim extends only 500 feet up and down the stream, the cabins are close together and the men visit one another. In the Klondike, or for that matter at Forty Mile creek or any of these faraway mining camps, the men are expert checker players, because that is the principal amusement, with whist as the favorite card game.

"No paper is too old," said Mr. Krook, "to read. We read all the advertisements and all the can labels. There was a supply of canned lobsters at the camp and some man used to put up with the cans wrappings of sheets from the bible. We used to commit the chapters to memory and see who could repeat them first without a mistake.

"The food is neither extra choice nor plentiful. But it is expensive. Bacon, ham and beans are the general rule

—no French wines or champagnes. The supplies are short at best and a man must often take bacon that he would not throw to a dog or go without. There is usually more whisky and hardware on hand than anything else. A man only needs a certain amount of hardware, and the less whisky he can get on with the better he is off.

"Sometimes a man has to watch his supplies pretty close, and they usually build a 'cache'—that is, a little platform set high up on light poles. He can then haul up his bacon and 'grub' and cover it with a tarpaulin. The risk of leaving the 'grub' in the cabin is that the bears get at it. They will even tear the roof off to get in, and there are plenty of the animals. They won't climb the thin posts, particularly when the bark has been peeled off.

"In regard to clothing, a man does not need much in summer, and in winter he studies comfort, not looks. In winter we wear moccasins and in summer while sluicing gum boots. I have not had leather on my feet since I left. Overalls cost $2.50 in Klondike, and everything else in proportion, but it is a great country to make money in."

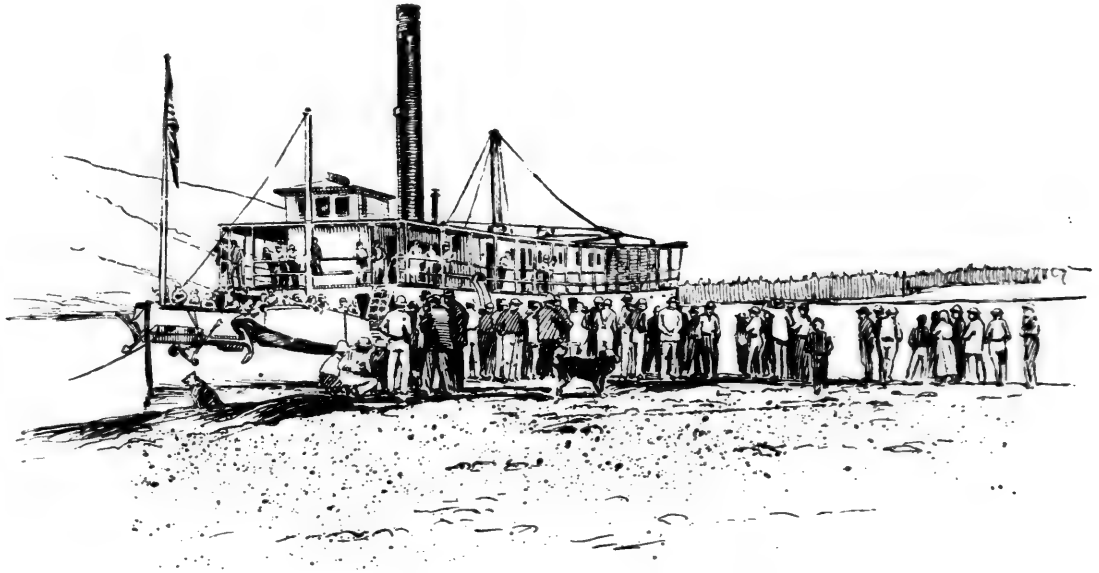
W. D. Johns, the special correspondent of the CHICAGO RECORD, who has been in the Yukon country for two years, sent a letter to the RECORD describing gold digging in winter in the Birch creek district. This letter was written December 21, 1896, and was published March 2, 1897, and was the first announcement, to be published in any newspaper, of the Klondike find. Mr. Johns' letter reads as follows:

"Life, climate and work in interior Alaska, close to the arctic circle, in winter is vastly different from that which the popular belief supposes it to be. While not as desirable a place of winter residence as countries farther south, it is one in which men travel, work and live, taking suitable precautions, without serious trouble or danger unless

they meet with accidents or get caught out when the temperature takes a sudden drop down to 70 or 80 degrees below zero. In that case if not well prepared there is danger, of course. But the principal danger is in getting the feet wet where the water has overflowed the river or creek ice and of freezing before a fire can be built and the feet dried. More men are fatally frozen in this way than any other. The river froze up later this fall, November 5, and since then the weather has been steadily cold, averaging 20 degrees below zero and running down at times to 40 and 50 degrees below, which is the lowest point yet touched, it having been a warm winter so far.

"Dog teams and horses are freighting out to the mines 60 miles back of the river. Miners are going and coming to and from the diggings, where they are now engaged in drifting, and many are going to the new place of excitement at Klondike, in the Northwest territory, 260 miles above Circle City, on the Yukon. Among them are some women. Yet one hears less complaint about the weather than in a cold winter in Chicago. When the thermometer drops 50 degrees below zero or lower most men remain in their huts if on the trail or in their cabins if cutting wood or at other work, but many travel when it is 60 degrees below zero and work in the shafts sinking and drifting out the pay dirt—not altogether pleasant for the man who is working the windlass above. At times too, it blows almost a gale when the thermometer is low and then it is almost unendurable.

"In the Birch creek diggings water seriously interferes with the winter digging in many places and it is not until late in the winter that some of them can be worked on this account. The earth down here is not eternally frozen to a great depth, as has been supposed. On the river above in the Northwest territory, this supposition is more



STEAMER "ARCTIC"—YUKON RIVER.

generally true and they are troubled much less with water than here, but even there it causes trouble. Another generally received fallacy is that it 'never rains' here. On the upper river the climate is dry, with but little rain, but when one gets as far down as Forty Mile one has almost as much rain as in North Dakota, and it increases down the river. So that here there is a good deal of rain. Up in the mountains this rain turns to snow, which is not infrequent at the diggings in midsummer. This accounts for the millions of mosquitoes, which are actually dangerous to life here if a man's face and body are not protected. On the upper Yukon they are not one-tenth as bad as down here, owing to the drier climate. Many a 'chechaco' (tenderfoot) on his way to the mines, with a pack on his back, has thrown down everything and struck back for town and gone on down the river without delay, cursing the country and its mosquitoes. Not one-third of those coming in stay over winter.

"To those who stay and work the country offers great rewards in comparison with what the average man can make below, and the chance of a fortune. In this district the mines offer the only source now, for Circle City is fully built, and the men who worked at it last summer will have to do something else, for there will be no building to speak of. At the present time it is very quiet. Many men went out, and almost all the rest have gone to the different creeks to sink prospect holes or to drift out pay dirt, which in some creeks does not have to be burned, as there is no frost after they get down to the pay. Last summer $500,000 was taken out of Birch creek district, and this winter they expect to take out $200,000, allowing $500 to the man, a very low estimate. As the country has not yet been thoroughly prospected this amount will probably be increased next year and for some

years to come. Parties are now out and more are going to prospect creeks over the range, and before spring new discoveries will undoubtedly be made.

"The new Klondike strike in the Northwest territory (Canada) is an example of how little is known of this region. Only 50 miles up the Yukon from the old Forty Mile post, where the Canadian government now has a police force, it has been casually gone over several times by prospectors who kept to the main creek or river. Last summer a squaw man was induced to go up a side creek of the Klondike by his Indian brother-in-law, and they found the gold on what is now asserted to be the richest creek in the gold region, and one of the richest ever struck anywhere. I myself have panned and seen panned some wonderfully rich prospects on the surface, as high as $3 to the pan. If the reports now coming down from Klondike are true they have it richer still on the bed rock.

"It is a great district, with many rich gulches, and will support an immense mining population when opened up in a year from now, though the news will bring in a host of men who will be unable to find work and who, unless they have money, will have to go out, as the companies have absolutely shut down on the credit they used to give. It is a matter of regret with Americans that these diggings are under the paw of the British lion. Many believe, indeed, that the majority of the rich strikes of the future will be on Canadian soil, near the main chain of the Rockies, which sends only spurs westward into Alaska. The Klondike diggings are on the same spur of the Rockies as those of Birch creek, 260 miles down the river, but they are only about 60 miles from the main range. A number of minor creeks were struck on the same range between Circle City and the Canadian line last summer.

"Every one coming in this spring ought to bring a

year's supplies, as so great a rush to the new strike is anticipated that the companies will not be able to supply the demand with their present steamer capacity. In the past they have just managed to supply the demand, falling short of many articles, and each fall sees a repetition of the scarcity. Just keeping up with the demand, they cannot supply a rush such as the Klondike strike will undoubtedly bring in, so that hardships must result unless newcomers bring a year's supply down the river.

"Independent steamers are needed that will carry freight. As it is now, if one can get freight carried at all up the river it costs $280 a ton, all water transportation from Seattle and up one of the finest navigable rivers in the world, so pronounced by competent Mississippi river steamboat captains, who are in here. The North American Transportation company, of which P. B. Weare and Jack Cudahy are the principal stockholders, put a new steamer on the Yukon the last summer, as did the Alaska Commercial company, of San Francisco, but this fall there was the usual shortage of supplies. The Weare company, which did all in its power to get up provisions, is said to intend putting on another steamer next summer. But what is needed is a steamer, or steamers, which will carry freight for the many who now cannot get a pound carried up the river at any price.

"The country is on the eve of a great development, and prices are simply enormous. In a few years when prices come down there are hundreds of claims paying $6, $7, $8 or $9 a day that can be worked that now cannot be touched because of the expense of food, tools and clothes."

Joe Ladue says that Dawson City, Circle City and Forty Mile are towns for "women-folk," because "any woman who can live anywhere on top of the earth can live

up there and be happy." The women of the upper Yukon seem to be of the same opinion, judging from the letters they send "home." The following interesting letter was received by John C. Hessian, a well-known attorney in Duluth, Minn., from his sister, whose husband is a hardware merchant at Fort Cudahy. She writes as follows:

"I was the ninth white woman in this country, and three out of the nine arrived only a month ahead of me. There are about two dozen now. I know eight of them, and we get along nicely together. There are about two thousand white men scattered through this part of the country, and a carload of girls would go like hot cakes. In coming into this place we came from Seattle out to Cape Flattery, through the northern waters of the Pacific Ocean, the Bering sea and up the Yukon river. We were six weeks en route. I stood the trip well, and was the only passenger able to eat three or more times a day. At the mouth of the great river, the Yukon, we took the river boat, which is very fine, with splendid accommodations. The scenery is beautiful all the 1600 miles to this camp.

"The Yukon is about two thousand miles long, and has a great many good-sized rivers flowing into it. It does not freeze up before October 10, although we have some very cold weather before that time, but it takes cold weather to stop these swift steamers. When it does freeze up, instead of freezing smooth the huge cakes of ice seem to be standing on edge from 12 to 15 feet high in places. I don't know how to describe it any better than by likening it to an ice-house blown up with dynamite. We are living on British soil, 30 miles from the Alaska line, nine blocks or thereabouts from the north pole, and 1,600 miles from a railroad. Until the last few months we have had no mail route, but persons coming in in the

spring and summer usually brought in the letters that accumulated at Juneau. They brought in letters only.

"Mining is the only industry. Gold can be found in the gravel on nearly any river, creek or gulch. Two obstacles the miner has to contend with are the short seasons and the frozen condition of the country. The earth, in summer, only thaws two or three feet, and that only in places exposed to the sun. There is no coin or currency in the country to speak of. All business is transacted with gold dust. No laws are recognized here except those made by the miners themselves. There is a good class of men here, pretty well mixed; goodhearted, hard workers. The Indians are very numerous here and throughout the country. They are peaceable and self-supporting. They look as much like the Chinese or Japs as they do like Indian. They try to imitate the white man in dress. Freighting is done entirely by dogs. These animals resemble the wolf in appearance, and are sold at $75, $100 and $125 each. The large game of the country is bear, wolves, moose and caribou, a species of the reindeer. The last two are fine eating.

"The mercury goes sometimes as low as 80 degrees below zero. At such a time a basinful of hot water thrown up in the air will come down in icicles. We are about 30 miles south of the arctic circle. During the short days it begins to get dark at 3 p. m., daylight appearing about 9:30 a. m. During the very shortest days the sun drops entirely out of sight, and is invisible for three weeks. During the long summer days we have continual daylight. You can see to read or write at night as well as at any time during the day. The sun rises and sets in the west in July, and during the shortest days it rises and sets in the east. The moon acts in the same manner. The northern lights, during the winter months, are beautiful

to look at. They move so rapidly and form into such beautiful shapes and colors that you could wish for nothing else more interesting. It would be utterly useless for me to attempt to explain these wonderful beauties of nature. The seasons of the year are 9 months winter and 3 late in the fall.

"Just listen to the buzz of the mosquitoes! It is my opinion there is only one flock, and that covers the entire country, for there are mosquitoes in every place you can go or think of. They are as thick as snowflakes in a snowbank. They get into activity and stay right with you. They do business day and night. A mosquito bar is as essential in summer as an overcoat in winter. When they quit, a small gnat shows up. The latter is fully as bad and far more numerous.

"The river boats have scarcely four months in the year in which to run. There are four boats running, and two more are building. Each of the boats can bring 350 tons of freight, but the amount of provisions that is needed for the different ports the full length of the river is immense, and there is always a shortage in some things.

"On the Bering sea, from our steamer, about 15 miles distant, we saw a mountain 1,500 feet high, of solid rock, and on top of that a statue of rock, a perfect representation of a bishop in his robes, crosier in hand, as perfect and real as anything you ever saw. The immense rock stands all alone, not another thing to be seen but water. On this river also there are two immense rocks standing all alone, one on each side of the river. They are called Adam and Eve. You would travel the world over and not be able to meet with prettier scenery than can be seen along this river. While at Circle City we saw a rainbow at a quarter to midnight.

"Fresh vegetables are hardly known here. The sea

son is too short to give them time to develop. Wild onions and rhubarb can be found everywhere. They are terribly strong, but we relish them as you would strawberries and ice cream. The blueberry, cranberry, salmonberry, wild raspberry and red currants grow in abundance on the islands and on the sides of the mountains.

"Just now, the old mail arrived. It was lost upon the summit nearly a year ago. I got a letter from Maggie in it. It is nothing to get mail several months old here. We have no more idea of what is going on in the world than a Yukon Indian. The river boats failed to make connection with the ocean steamers all summer. Finally, the Canadian surveyors here had set the time to go out from here and would take mail. They were going overland, leaving here on the morning of Sept. 20, but on that very morning it began to rain, snow and blow, and continued so until the 26th, when the slush ice began to run in the Yukon and winter set right in. No one has gone out since, but the surveyors will start tomorrow. The steamboats were all frozen in along the river, loaded for this port. Provisions are very scarce. Many of the miners have to go down the river for the winter, while many others will winter on a hundred pounds of flour and caribou. We have plenty of everything, in fact, all the families have. The only sad part of it for us is that all of our goods are on the steamer Bella, two hundred miles from here, and we will not see them until next summer. This was a backward summer for the steamers. The wind blew so hard around St. Michael they could scarcely unload the ocean vessels, as they have to unload about one mile from the shore on account of low water.

"Sixty head of cattle were driven in from Juneau and got here last week. The first beef ever in the country. We got two porterhouse steaks for Sunday dinner. The

cost $10—$1 per pound—bone, trimmings, fat, horns, and tail, all the same price. We got, by chance, 250 pounds of native potatoes—we are the only ones with that many. The ship's potatoes are on the steamers with the rest of the eatables. We had to kill our chickens, as the chicken feed did not get here. I have them frozen, and will have chicken for Christmas and New Year's.

"There was a new mining district discovered, 50 miles up the Yukon from here, two months ago. It is turning out to be a great thing. There are over six hundred claims already staked, and a new town started called Klondike. Pat went up with the first excitement and got three town lots. One of them he has already been offered $1,500 for, but will not sell. He also staked two claims and bought another this week for $1,500. These are all placer mines. I also have a claim. Pat and I have men prospecting on our claims. We may never get a cent out of them, and we may get thousands. We are running that risk.

"I have been writing this by lamp light, but just now, at 10 o'clock a. m., the sun is just coming over the mountain tops, with two sun dogs accompanying it. It is 40 below, with a strong wind blowing.

"We got your papers and clippings and passed them around. You don't know what a treat it is to see print in here. Pat would give his head to know something about the election. He sincerely hopes Bryan is president, and tries to console himself by thinking he actually must be the man.

"I am knitting socks and stockings. I only wear two pairs at a time, with a pair of Dutch socks and a pair of fur boots."

CHAPTER XIX.

OGILVIE'S REPORT ON THE YUKON DISTRICT.

THE YUKON DISTRICT in which the Klondike placer mines are located was traversed by traders of the Hudson Bay company as far back as 1840. William Ogilvie the land surveyor of the Dominion of Canada, commissioned by the Department of the Interior of the Dominion government to survey that district, returned from there in the early summer of 1897. In his report he designates the Yukon district as that part of the Northwest territory lying west of the water-shed of the Mackenzie river, most of it being drained by the Yukon river and its tributaries. It covers a distance of about 650 miles along the river from the Coast range of mountains.

In 1847 Fort Yukon was established at the mouth of the Porcupine river by A. H. Murray, a member of the Hudson Bay company. Seven years prior Robert Campbell explored the upper Liard river and the Pelly river down to the confluence of the Lewes river.

In 1848 Campbell established Fort Selkirk at the confluence of the Pelly and Lewes rivers; it was plundered and destroyed in 1852 by the Coast Indians and only the ruins now exist of what was at one time the most important post of the Hudson Bay company to the west of the Rocky mountains in the far north. In 1869 the United

States government expelled the Hudson Bay company's offices at Fort Yukon, as it was found that the post was not located in British territory. The officer in charge ascended the Porcupine river to a point which was supposed to be within British jurisdiction, where he established Rampart House; but in 1890 J. H. Turner of the United States coast survey found that post was twenty miles within the lines of the United States. Consequently in 1891 the post was moved twenty miles further up the river to be within British territory. The next people to enter the country for trading purposes were Harper and McQuestion. They have been trading in the country since 1873; Mr. Harper is now located as a trader at Fort Selkirk, and Mr. McQuestion is in the employ of the Alaska Commercial company at Circle City, which is the distributing point for the vast regions surrounding Birch creek, Alaska. In 1882 a number of miners entered the Yukon country. The next year Lieutenant Schwatka of the United States navy ascended the Lewes and Yukon rivers to the ocean.

In 1887 Thomas White, the minister of the Interior of Canada, authorized the organization of an expedition having as its object the exploration of that region of the Northwest territories of Canada that are drained by the Yukon river. The work was intrusted to Dr. George M. Dawson, now the director of the geological survey of the Dominion government, and William Ogilvie, the well-known explorer and surveyor. Dr. Dawson devoted the whole of that season, and Mr. Ogilvie a period covering nearly two years to obtaining geological, topographical and general information, chiefly respecting the tract of country lying adjacent to the 141st meridian of longitude, which, by the treaty of St. Petersburg, was designated as the boundary line from the neighborhood of Mt. St. Elias

to the Arctic ocean, between Alaska and the Northwest territories of Canada.

The explorers found that in proximity to the boundary line there existed extensive and valuable placer gold mines, where even then as many as three hundred miners were at work. Mr. Ogilvie determined by a series of lunar observations, the point at which the Yukon river is intersected by the 141st meridian, and marked the same on the ground. He also determined and marked the point at which the western branch of the Yukon, known as Forty Mile creek, is crossed by the same meridian line, and located that point at a distance of about twenty-three miles from the mouth of the creek. At the junction of the Yukon and Forty Mile creek Fort Cudahy is located, and according to this survey is well within Canadian territory. Mr. Ogilvie reported to the Canadian government that the greater proportion of the mines then being worked was on the Canadian side of the international boundary line. Extracts from Mr. Ogilvie's report follow:

"The Alaska Commercial company, for many years subsequent to the retirement of the Hudson Bay company, had a practical monopoly of the trade of the Yukon. With the discovery of gold came the organization of a competing company known as the North American Transportation and Trading company, having its headquarters in Chicago and its chief trading and distributing post at Fort Cudahy. Both of these companies have steamers plying between San Francisco, Seattle and St. Michael.

"At the last named place the passengers and freight are transferred to stern-wheel river boats, and Fort Cudahy is reached after ascending the swift current of the Yukon for sixteen hundred miles. This is the easiest,

but the longest route, and the diggings are not reached until a considerable portion of the short summer season is passed. Mr. Ogilvie, in his report, says as a rule it is not safe to enter Norton sound (in which the island of St. Michael is located) on account of ice before the first of July.

"St. Michael is eighty miles from the northly mouth of the Yukon; the passage up the river takes from eighteen to twenty days, and the round trip about a month. The first boat does not arrive at Fort Cudahy and Dawson City until late in July, and the river closes in September, so that the arrival of the last boat is somewhat uncertain; last year they are said to have been frozen in at Circle City. Two round trips in a season are all that can be relied upon.

"Many persons prefer going by Lynn canal, the Taiya (Dyea) pass, and down the Yukon. The distance from the sea to Cudahy is only 630 miles, and to Dawson City a little over 575 miles, and by starting in April or May the diggings are reached by the beginning of June. The upper part of the river opens several weeks before the lower part is free from ice. After crossing the pass the trip to Cudahy can be accomplished in eight days. Another route is now being explored between Telegraph creek and Teslin lake, and will soon be opened.

"Telegraph creek is the head of steamer navigation on the Stikine river, and is about 150 miles from Teslin lake. The Yukon is navigable for steamers from its mouth to Teslin lake, a distance of 2,300 miles. A road is being located by the Dominion government, and a grant of $2,000 has been made by the province of British Columbia for opening it.

"J. Dalton, a trader, has used a route overland from Chilkat inlet to Fort Selkirk, going up the Chilkat and

Klaheela rivers. He crosses the divide to the Tahkeena river, and continues northward over a fairly open country practicable for horses. The distance from the sea to Fort Selkirk is 350 miles. It is proposed to establish a winter road somewhere across the country traveled by Dalton. The Yukon cannot be followed, the ice being too much broken, so that any winter road will have to be overland. A thorough exploration is now being made of all the passes at the head of Lynn canal and of the upper waters of the Yukon. In a few months it is expected that the best routes for reaching the district from the Lynn canal will be definitely known."

Under date of Fort Cudahy, September, 1896, Mr. Ogilvie writes of the discovery of gold on Bonanza creek, a branch of the Klondike. He gives as the correct name of the now famous stream "Thron-Diuck," and says it is marked on the map as "Deer river," and joins the Yukon a few miles above the site of Fort Reliance. In this letter Mr. Ogilvie says: "Between Thron-Diuck and Stewart river a large creek, called Indian creek, flows into the Yukon, and rich prospects have been found on it, and no doubt it is in the gold-bearing country between Thron-Diuck and Stewart rivers, which is considered by all old miners the best and most extensive gold country yet found."

Referring to the Klondike region, Mr. Ogilvie writes: "I think I can expend more in the interest of the country by remaining here and making a survey of the 'Klondak' of the miners—a mispronunciation of the Indian word or words 'Thron-dak,' or 'Diuck,' which means 'plenty of fish,' from the fact that it is a famous salmon stream. It is marked 'Tondak' on our map. It joins the Yukon from the east a few miles above Fort Reliance, about forty miles from here (Fort Cudahy). As I have

already intimated, rich placer mines of gold were discovered on the branches of this stream. The discovery, I believe, was due to the reports of Indians.

"A white man named George W. Carmack, who worked with me in 1887, was the first to take advantage of the rumors and locate a mine on the first branch, which was named by the miners Bonanza creek. Carmack located late in August (1896), but had to cut some logs for the mill here to get a few pounds of provisions to enable him to work on his claim. The fishing at Thron-Diuck having totally failed him, he returned with, in a few weeks, provisions for himself, his wife and brother-in-law (Indians), and another Indian in the last days of August, and immediately set about working his claim.

"The three men, working very irregularly, washed out $1,200 in eight days. On the same creek two men rocked out about $75 in four hours, and it is asserted that two men in the same creek took out $4,000 in two days with only two lengths of sluice boxes. This last is doubted, but Mr. Leduc assures me he weighed that much gold for them, but it is not positive where they got it.

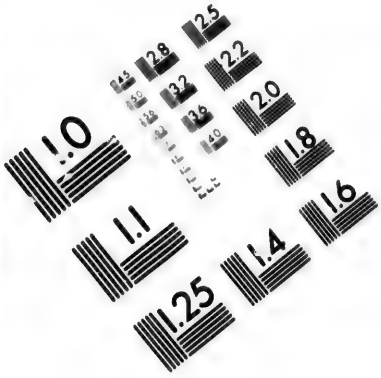
"A branch of Bonanza, named El Dorado, has prospected magnificently, and another branch named Tilly has prospected well. In all there are some four or five branches of Bonanza which have given good prospect. A few miles farther up Bear creek enters Thron-Diuck, and it has been prospected and located on. Compared with Bonanza it is small, and will not afford more than twenty or thirty claims, it is said. About twelve miles above the mouth, Gold-Bottom creek joins Thron-Diuck, and on it and a branch named Hunker creek, after the discoverer, very rich ground has been found. On Gold-Bottom creek and branches there will probably be 200 or 300 claims. The Indians have reported another creek

much further up, which they call 'Too-Much-Gold-Creek,' on which the gold is so plentiful that, the miners say in joke, 'You have to mix gravel with it to sluice it.'

"From all this we may, I think, infer that we have here a district which will give 1,000 claims of five hundred feet in length each, and this is not all, for a large creek named Indian creek joins the Yukon about midway between Thron-Diuck and Stewart rivers, and all along this creek good pay has been found. Indian creek is quite a large stream, and it is probable it will yield 500 or 600 claims. Farther south yet lies the head of several branches of Stewart river, on which some prospecting has been done this summer and good indications found.

"Now gold has been found in several streams joining Pelly river, and also all along the Hootalinqua. In the line of these finds farther south is the Cassiar gold fields in British Columbia; so the presumption is that we have in our territory, along the easterly water-shed of the Yukon, a gold-bearing belt of indefinite width and upwards of 300 miles long, exclusive of the British Columbia part of it. On the westerly side of the Yukon prospecting has been done on a creek a short distance above Selkirk, with a fair amount of success, and on a large creek some 30 or 40 miles below Selkirk fair prospects have been found."

Mr. Ogilvie bears testimony to the richness of the Klondike placer mines, under date of Dec. 9, 1896, as follows: "Since my last the prospects of Bonanza creek and tributaries are increasing in richness and extent until now it is certain that millions will be taken out of the district within the next few years. One man told me yesterday that he washed out a single pan of dirt on one of the claims on Bonanza and found $14.25 in it. Of course that may be an exceptionally rich pan, but $5 to $7 per pan is the average on that claim, it is reported, with five



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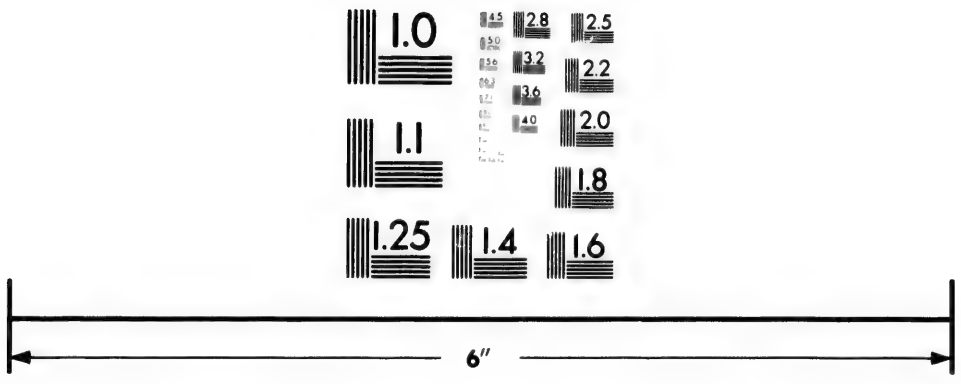

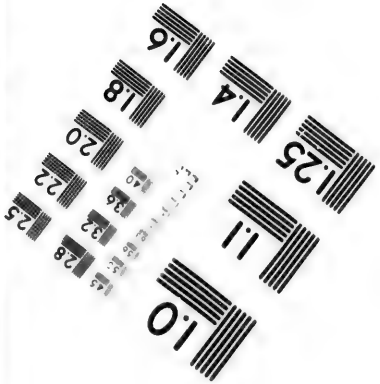

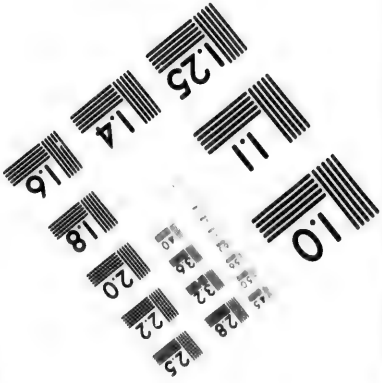

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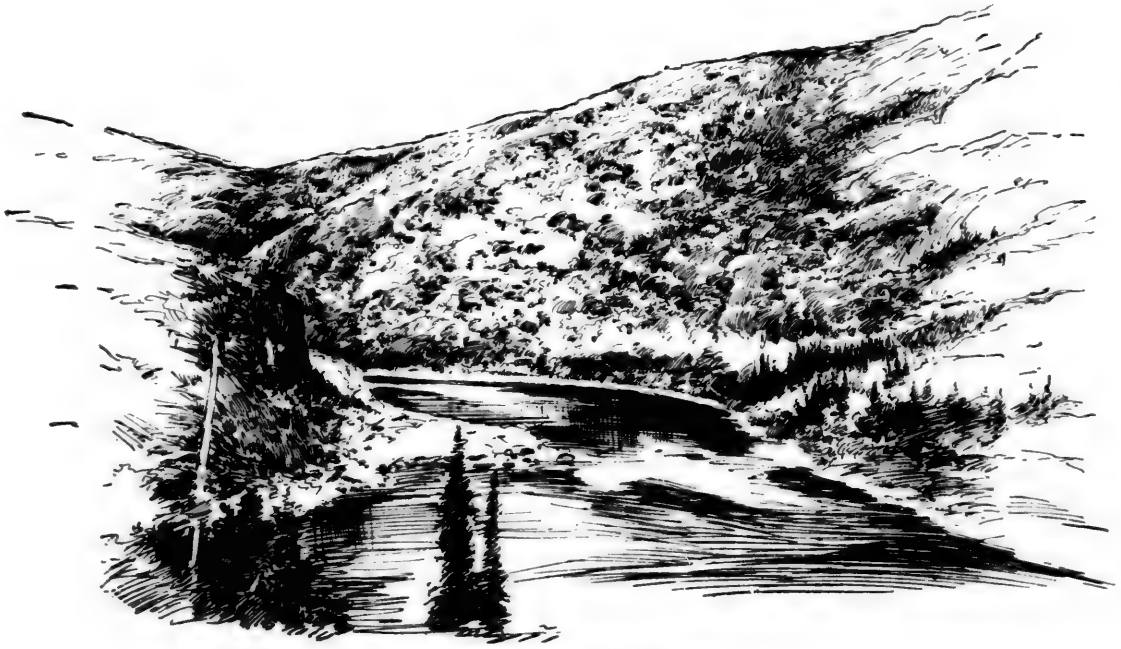


SCENE ON FORTY MILE CREEK.

feet of pay dirt and the width yet undetermined, but it was known to be thirty feet even at that; figure the result at nine to ten pans to the cubic foot, and five hundred feet long; nearly $4,000,000 at $5 per pan—one-fourth of this would be enormous.

"Another claim has been prospected to such an extent that it is known there is about five feet pay dirt averaging $2 per pan and width not less than thirty feet. Enough prospecting has been done to show that there are at least fifteen miles of this extraordinary richness; and the indications are that we will have three or four times that extent, if not all equal to the above, at least very rich.

"Miller and Glacier creeks on the head of Sixty Mile river, were thought to be very rich, but they are poor, both in quality and quantity, compared with the Thron-Diuck. Chicken creek, at the head of Forty Mile in Alaska, discovered a year ago, and rated very high, is to-day practically abandoned. Some quartz prospecting has been done in Thron-Diuck region, and it is probable that some good veins will be found there. Coal is found on the upper part of Thron-Diuck, so that the facilities for working it, if found, are good and convenient. A quartz lode, showing free gold in paying quantities, has been located on one of the creeks, but I cannot yet send particulars. I am confident from the nature of the gold found in the creeks that many more of them—and rich, too—will be found.

* * * * * * *

"I have just heard from a reliable source that the quartz mentioned above is rich, as tested, over $100 to the ton. The lode appears to run from three to eight feet in thickness, and is about nineteen miles from the Yukon river. Placer prospects continue more and more encouraging and extraordinary. It is beyond doubt that three pans

SCENE ON FORTY MILE CREEK.

on different claims on El Dorado turned out $204, $212 and $216; but it must be borne in mind that there were only three such pans, though there are many running from $10 to $50 a pan.

CHAPTER XX.

GOLD HISTORY OF ALASKA.

JOSEPH JUNEAU has gone down in the history of Alaska as the first man to demonstrate the existence of gold in any considerable quantity in the vicinity of the town which bears his name. It was in 1880 that gold was discovered in the vicinity of Juneau, but the first discovery of gold in Southeast Alaska was made near Sitka in 1873. The subsequent excitement brought miners from the Cassiar regions in British Columbia, and in the Northwest territory to the southeastern coast of Alaska, and prospecting was actively prosecuted. The gold find of 1880 transformed the little Indian settlement at the head of Gastineau channel, where before a white man had rarely been seen, into a typical American mining camp. Prospectors went back into the interior singly and in parties of three or more and located many claims.

Richard Harris, a partner of Juneau, at first was credited with the honor of discovering gold in that district, so the first mining town was named Harrisburg; it afterward was named Rockwell in honor of one of the officers of the United States steamer Jamestown, but finally the town was given the name which it now bears—Juneau. Back of Juneau extends the deep ravines and gorges through which Gold creek pours its waters, and many men found diggings in them which paid them well.

When the gold excitement at Juneau was at its height

it was reported that gold had been found on top of a mountain which is two miles across the bay. A miner who went by the name of "French Pete" staked off a claim on top of this mountain. John Treadwell, after investigating this location, purchased French Pete's claim for $400. He first built a 5-stamp mill, and the development was so promising that he was able to interest capital sufficient to build a 120-stamp mill. Seven years after the first discovery this was enlarged to 240-stamp, making the Treadwell property the largest mill in the world. Since then this immense mill has been pounding out gold almost night and day without cessation. The ore is known as very low grade, yielding only about $1.85 in bullion to the ton of ore, but since the 240-stamps were put in, the Treadwell mine has been turning out from $70,000 to $80,000 a month.

Free gold has been found on Prince of Wales island and north on Annette island, and many claims have been located, the assays of which indicate large and rich deposits of the precious metal. At Sum Dum the Bald Eagle mining claim is located, and a 10-stamp mill is at work there. The ore is valued at upward of $100 a ton. Ten miles from Juneau on Sheep creek is the Silver Queen mine, with a 10-stamp mill. Within a radius of four miles of Juneau there are nine mills in operation, including the great Treadwell mine.

The four miles of country drained by Gold creek seems to be covered by rich ledges of gold quartz; a number of stamp mills are working in this district about eight months out of the year. In what is known as the "basin" a large sum of money has been spent in getting ready to develop the placer mines by the process of hydraulic mining. Over the bay which adjoins the Treadwell mine is the Mexico mine, which has a 120-stamp mill.

Sixty miles from Juneau toward Lynn canal is the Berner's Bay mining property, and on the Admiralty island in Funta bay is a group of rich ledges.

Rich indications of silver have been found at Glacier bay, and on Willoughby island are rich galena deposits. For several years prospecting has been carried on at Unga, and a large mill has been erected by the Alaska Commercial company at that point.

The gold deposits in southeastern Alaska require expensive machinery to work them, for the ore is low grade. In this sense this is not a "poor man's country." The report of the governor of Alaska for the year ending October 1, 1896, shows that $2,300,000 in gold bullion was taken from the gold mines within the territory of Alaska during the year ending October 1, 1896. The greater part of this amount was the product of low grade ores, much of which yielded less than $4.00 per ton. The average cost of mining and milling the quartz rock at the Alaska-Treadwell gold mining company's mines on Douglas island in 1896 was $1.25 a ton.

In 1881 gold was first discovered in paying quantities in the Yukon basin. A party of four miners after crossing the range descended the Lewes river as far as the Big Salmon, which they explored, prospecting all the way, for a distance of 200 miles. They found gold on all the bars of the Big Salmon. The next three or four years the Pelly and Hootalinqua rivers were prospected, and in 1886 the gold finds at Cassiar bar on the Stewart river were made.

Geographers divide the Yukon section into three principal divisions. The upper division lies entirely within British territory and embraces the White, Stewart, Pelly, Lewes and Hootalinqua rivers, which, with their several branches and tributaries, form the head waters

of the Yukon; the middle division includes the Yukon between Fort Reliance and the mouth of the Tanana river; the lower division the Yukon from the Tanana to Norton sound and Bering sea.

Before the Klondike discovery the most important placer mines were located in the middle division of the Yukon district; on Forty Mile, Sixty Mile, Miller, Glacier and Birch creek and Koyukuk river. The Forty Mile and Sixty Mile creeks have their source in the Ratzel mountain, flowing into the Yukon from the west. The streams which flow into the Tanana, which start from the other side of the Ratzel mountains, have not been thoroughly explored, but gold in paying quantities has been found along the banks of the Tanana, and some of the bars have been worked with profit. One of the richest of the gold-bearing creeks so far discovered in this middle division is Miller creek, a tributary of Sixty Mile creek. Glacier creek, another branch of Sixty Mile creek, is also rich in gold. This middle division is the "poor man's" mining territory, for the mines are placer mines.

Rich gold discoveries have been reported from Indian creek, which flows into the Yukon 30 miles below Sixty Mile creek. Forty Mile creek was not discovered until 1887. It enters the Yukon from the west, drains the country lying between the Yukon and Tanana river, is about 200 miles long, and its tributaries are numerous. The mouth of this creek is in Canadian territory.

On Forty Mile nearly all the available rich ground has been worked out, but on the banks of the stream are many high bars, which are known to be rich, but which have not been worked because of the difficulty in getting water through them. The find of gold on Forty

Mile caused a great sensation, and the next gold craze was caused by strikes on Birch creek.

One of the main tributaries to Birch creek is Crooked creek, and from Circle City, which is eight miles across the portage from Birch creek to the Yukon, a trail leads over the hills to the mines on Independence and Mastodon creeks. Gold was discovered on the Molymute, a branch of Birch creek, in 1893. In this same year rich gold discoveries were made on the Koyukuk river, and a number of creeks, such as North Fork, Wild creek, South Fork and Fish creek, have been prospected with good success, although no extensive deposits have been found. Below the Koyukuk river the only streams of any size that empty into the Yukon are the Innoko and the Anvik, but little prospecting has been done, however, below Koyukuk river. Almost all of these placer mines have been practically abandoned since the remarkably rich finds of gold in the Klondike district in August, 1896.

An old prospector who has been in the Alaska Yukon district for a number of years said that there is enough undeveloped gold-bearing country in that district to take care of 100,000 miners, not one of whom would be within neighborhood distance of another, and it was all "tenderfoot" land.

History repeats itself in the Klondike discovery and the excitement caused by it. It is about forty years since any excitement equal to that caused by the Klondike find has swept over the country. The older residents of the Pacific coast passed through a number of mining excitements since the days of '49, when the rush to California followed the discovery of gold in that then almost unknown and sparsely inhabited country. For ten years after the discovery of gold in California a succession of

mining crazes passed over the country, until the country from the Mexico line to Alaska had been explored and found to contain rich mines.

The first rush was to the valleys of the Klamath, the Columbia and the Frazer, and finally, the Cariboo, Peace river and Stikeen were invaded and proved more or less rich. Thousands flocked to these streams, a few made fortunes and the many, after enduring hardships and sufferings, returned poor, naked and hungry. The swarms that invaded California in 1849 flowed over into Oregon. Rich diggings were discovered around Jacksonville, and the miners pushed their way up the Columbia into Idaho and Montana, the only route to those regions being the valley of the Columbia. Rich mines were found at Salmon river, Oro Fino and many other places, and in the Bitter Root mountains and farther on in Montana.

These were the days when the Oregon Steam Navigation company was formed, and Ladd, Reed, Ainsworth, Thompson, Kamm and others laid the foundations of their fortunes. Then in 1856 and the years following came the Frazer river excitement, which brought riches to some and disaster to many. People went wild all over the coast, and flocked in crowds to Victoria, then principally a fort of the Hudson's Bay company.

Most of them had but little idea where the Frazer river was or how they were to get there. There were no steamers running on the Frazer, nor any for some time from Victoria to the Frazer. All the boats, canoes and dugouts available could only take a few of the people who wanted to go, and they collected in camp at Victoria till there were, it is said, 20,000 people there to celebrate the Fourth of July in 1858, or thereabouts.

Deposits of gold were fonud along the Frazer from fifty

miles above the mouth to the Rocky mountains, some 600 miles, and at places diggings as rich as those reported at Klondike were found—as at Cariboo, Antler creek and many other places. Later there were rushes to Ominica, Peace river and many other districts. Probably about the last great rush, and one of the most disastrous of all, was to the Stikeen river, sometime about 1875. Hundreds begged their way home from Stikeen, barefooted, hungry and ragged.

CHAPTER XXI.

THE HUDSON'S BAY COMPANY.

HUDSON'S BAY COMPANY, organized for the purpose of turning into old-world gold the peltry treasures of the new world, dates its history from the year 1668. Under the direction of Prince Rupert, Count Palatine of the Rhine, an experimental trip had been made into the wilds of British America, and in the year named the prince, with seventeen other noblemen and gentlemen, formed an association to develop the new land. Two years later King Charles II. granted the association corporate powers under a charter which styled the prince and his fellows the "Governor and Company of Adventurers of England Trading Into Hudson's Bay." By the terms of this instrument one of the greatest monopolies of history was created—one, indeed, of the latent possibilities of which its promoters scarcely dreamed.

This charter of 1670, in the nominal consideration of the annual payment of two black beavers and two elks, granted the company of gentlemen adventurers "the sole trade and commerce of all those seas, straits, bays, rivers, lakes, creeks and sounds, in whatsoever latitude they shall be, that lie within the entrance of the straits commonly called Hudson straits, together with all the lands and territories upon the countries, coasts and confines of the seas, bays, etc., aforesaid, that are not already actually possessed by or granted to any of our subjects,

or possessed by the subjects of any other Christian prince or state."

The vagueness of this patent was relieved somewhat later on, when the company, with much unwillingness, agreed to accept the grant as conveying control only of all lands watered by streams flowing into Hudson Bay. Along with the right to trade throughout the vast territory that was the subject of royal patent went absolute lordship and entire legislative, judicial and executive power. Nor was this "right to trade" less absolute than the civil authority that went with it, as is witnessed by the letter of the charter. By its terms the company received the right to "the whole and entire trade and traffic to and from all havens, bays, creeks, rivers, lakes, and seas, into which they shall find entrance or passage by water or land out of the territories limits or places aforesaid."

The company's first post was established at the mouth of the river flowing into James bay at its extreme south. It was known as Moose Factory. Not long afterward settlements were established at Forts Albany, Churchill and York, commanding the whole western shore of the great bay. Year by year the strength and prosperity of the company grew greater, although, after obtaining a firm footing on the shore of Hudson Bay the corporation, contrary to what might have been expected, did not seek immediately to penetrate into the immense territory to the west and south. So slow, indeed, were the managers to push the development of its territory that in 1749 an unsuccessful attempt was made in the British parliament to annul the company's charter on the ground of "non-use;" for there were only about 120 regular employes and some four or five forts on the coast.

From its first organization the Hudson's Bay company

met opposition at the hands of the French. In 1627 a French company had been organized under a charter conferred by Louis XIII. The terms of the French charter were almost identical with those under which the English company operated, and in the inevitable rivalry between the two corporations there was destined to be no lack of bloodshed. The losses suffered by the English company were not alone commercial, due to competition; the French sent numerous military expeditions against its forts, and losses suffered on this account amounted up to the year 1700 to £215,514.

The successors of the French in making trade uncomfortable for the British company were large numbers of fur traders who spread over Canada after the cession of that territory to Great Britain, and who finally encroached on the lands of the Hudson Bay corporation. The history of the company from this time on was one of romance and tragedy. The rivals for trade employed every artifice for outwitting one another, and the liquor which they introduced among the Indians for the furthering of their ends wrought the demoralization of the savages. Backers of the company in England became alarmed at its failure to realize their expectations. The independent traders were outwitting the company's factors at their own game. The managers in England were anxious to have the American agents push inland, but the latter were afraid to venture into a region of unknown perils; so it happened that it was more than 100 years before the company's agents penetrated the Red river region, which later on became the center of their activity. The independent traders, on the other hand, sent their agents year by year from Montreal up the Ottawa and on by boat and by portage through Lake Nipissing, Lake Huron, Lake Superior, Rain lake and Lake of the Woods, and

down Winnipeg river and lake to the base of the Rocky mountains.

These traders ingratiated themselves with the natives and as a result secured the best of the furs which the Indians had to offer, while the Hudson's Bay company was dealing mainly in otter and beaver skins, and those of an inferior quality. In 1783 the independent fur traders combined under the style of the North-West company of Montreal. In its service about 5,000 men were employed, and although the fierce competition that immediately broke out impaired the revenues of the British company for a time, yet from the springing up of opposition date the intelligent management and the larger success of the company. Under stress of new difficulties the affairs at the posts on Hudson Bay were managed with greater prudence and its traders in the interior operated with more discretion. The traders of the North-West company had scaled the Rocky mountains and were bartering with the Indians along Peace river. Traders of the British company followed. The North-West company built forts. The Hudson's Bay company built forts to match them or excel them. Fraud met fraud, artifice artifice, and when one struck a blow the other never was known to turn the other cheek.

About the time the rivalry was at its most intense pitch, Lord Selkirk, a Scotch peer, obtained, in 1811, a grant from the Hudson's Bay company in what then was known as the district of Ossiniboia. With a view to providing homes for the surplus population of the Scottish highlands, his agent, Miles Macdonell, in 1813, planted a settlement on the banks of the Red river. Fort Daer at Pembina was the first fortification. In one year's time the colonists numbered 200. But the North-West company wanted those fertile plains along the Red river for

itself. It desired them preserved as hunting grounds, and consequently its agents began a systematic campaign of intimidation, which sometimes did not stop short of actual violence, with the hope of driving out the unwelcome settlers. As the Scotch colonization scheme prospered, its promoters building forts and extending their commercial operations, the opposition and, indeed, the desperation of the North-West company grew more intense. The French-Indian half-breeds were inflamed to commit depredations on the property of the Highlanders and their homes and mills and store-houses were burned. The Earl of Selkirk hastened to the rescue, reorganized the community and addressed himself to the task of strengthening the colonists' means of defense and offense. In this he was successful and the colony remained in the control of his family until 1835, when his claims over a territory colonized by not less than 5,000 souls were transferred to the Hudson's Bay company.

To return, however, to the time of the fifth earl of Selkirk, the competition that was aimed at him reached its climax in 1816 in a battle in front of Fort Garry, the Hudson's Bay company's chief post in the Red river region. In this conflict twenty men, including several officers and Governor Semple himself, lost their lives. This was not the end of the fighting, but the fighting proved the death of trade, and not until the business of both the rival companies was entirely destroyed, so far as profit was concerned, did the officers of each awake to the folly of such a course. Then, in the year 1821, under act of parliament a coalition was effected. The North-West company ceased to exist and thenceforth the Hudson's Bay company possessed the vast field without rival. Not long after the coalition George Simpson, a young Scotchman of great ability, was given control in

DOG TRAIN.

North America with the title of governor-in-chief of Rupert's land. For forty years he managed the affairs of the consolidated companies, winning wealth and honor. Under his government the company prospered, until, in 1860, it was operating 155 establishments with twenty-five chief factors in charge and employing twenty-eight chief traders, 152 clerks and 1,200 other employes, besides many thousand Indians.

In 1869, at the demand of the Dominion of Canada, the company surrendered its monopoly of the northwest in consideration of the payment of £300,000 sterling, and the transfer to it of one-twentieth of the land within the fertile belt, besides 50,000 acres immediately surrounding its posts. Thus the Hudson's Bay company surrendered its monopoly to begin its latter day career as an immense commercial corporation.

In all the vast territory the fur trade of which is in the hands of the Hudson's Bay company there are only a few real forts. These are surrounded with stone walls, and are veritable strongholds. All the rest of the posts to which the name of fort has been given are merely trading stations, fortified to an extent, it is true, but only so much as the wildness of the country makes absolutely necessary. At these trading stations all exchange is by barter. Skins are the standard of value, the beaver skin being the unit. In trade with the Indians the officers of the company have never made any pretense of giving the actual value of the more valuable skins. It is presumed that they have satisfied their consciences with the excuse that to pay more for a valuable skin than for a cheap one would lead to the speedy extinction of the rarer fur-bearing animals, since the Indians would trap the valuable to the neglect of the more plentiful. It is not on record, however, that the company ever has "evened

things up" by paying the simple savage more than the value of the cheap skins.

Methods of trade in the northern and southern portions of the Hudson bay region are radically different. The Indians of the north are a race of solitary trappers, while those of the south go in bands and hunt and make the rounds of their traps on horseback. The finer furs come from the former; the coarser furs, the buffalo hides and the leather from the Indians of the south, whose homes are along the Saskatchewan. The Indians of the northern district are practically in a state of peonage to the Hudson's Bay company. Throughout the spring and summer the company makes advances to the Indians of such supplies as they need for their sustenance, these to be paid for at the end of the hunting season. Being constantly in debt they are constantly dependent, but whatever may be said against the system, it is none the less true that the company's rule is as paternal as it is autocratic. In the case of the southern Indians, however, that sort of transaction will not serve. Those who live in the saddle are not easily kept in subjection; consequently trade with these natives has more of the character of commerce among equals, and so unfeigned is the respect in which the company's agents hold these Indians that in the course of trade many gifts are employed to keep the red men in good humor, whilst stout stockades and firearms in reserve are provided against a possible day of bad humor.

The supreme authority in the resident government of the Hudson's Bay company is the governor's council, when it is in session. Apart from the two or three days in each year when this council is sitting the governor is supreme, and that functionary, whose official title is governor of Rupert's land, holds his authority from the offi-

cers resident in London. These are a governor, a deputy governor and a committee of five directors, all subject to annual election by the voice of the stockholders at a general meeting in November.

The commercial organization of the company is somewhat complicated. Resident in the localities where the transactions with the Indians are carried on are members of what is known as the "Fur Trade." The members of the Fur Trade are divided into two classes, chief factors and chief traders, who individually are entitled to attend the annual meetings of the governor's council. The service of the members of the Fur Trade is rendered to the company on a thoroughly profit-sharing basis. Their aggregate interest in the company is comprised in a certain definite number of shares, of which a chief factor is given two shares and a chief trader one. Thus fluctuations in profits produce fluctuations in income. Vacancies in the Fur Trade are filled by election, the chief factors by a majority vote electing new members to their body from among the chief traders, while the chief traders are drawn from the ranks of the salaried clerks. The salaried clerks in their turn are recruited from importations from Great Britain and the older portions of the Dominion, as well as from among the laborers employed about the trading posts, though these latter rarely rise higher.

It is difficult for one acquainted only with thickly populated regions to realize over what a vast territory the operations of the Hudson's Bay company reach. From the Red river region to Great Slave lake the company has its voyageurs plying their canoes over 1,000 miles of lakes and rivers. The Mackenzie river carries them 500 miles farther to the Arctic ocean. Between Moose Fort and the trading posts of British Columbia is 2,000 miles of forest and stream, with subject Indians and shrewd trad-

ers all along the line, only fewer in number than the animals in whose pelts they trade. Between the company's posts at Fort Simpson and Sault Ste. Marie intervenes a space of 2,500 miles, and all this territory is managed from one central office and tributary to one corporation of stockholders.

The company's original chartered territory, together with the immense region into which its influence extends, is divided into four departments. These departments or sections are known as the Montreal, the Northern, Western and Southern. The Northern department lies between Hudson bay and the Rocky mountains. The Montreal department embraces all of Canada. The Western department includes all to the west of the Rocky mountains, while the Southern comprises the territory between James bay and Canada and also includes East Main on the eastern shore of Hudson bay. In these four departments there are fifty-three subdivisions, known as districts, and each district has a fortified supply house and a superintendent. To this depot the necessary supplies for the district are issued and it constitutes also the collecting station from which the furs and other produce of the district are shipped to the home warehouses in England. In these districts there are innumerable smaller establishments, all tributary to the main district supply house. In each fort or post there are from two to fifty servants of various sorts, besides an officer in general charge. The rivers and minor streams navigable only for canoes, which ramify throughout the Northwest territory teem with company employes, known as voyageurs, who constitute the last and indispensable link in the chain that connects the Indian trappers with the civilized customer for his wares.

CHAPTER XXII.

ELI GAGE'S YUKON JOURNEY.

ONE OF THE first persons to bring reliable, authentic news of the rich gold finds on the Klondike was Eli A. Gage, son of Lyman J. Gage, secretary of the treasury. Eli Gage is an officer of the North American Transportation and Trading company, which operates on the Yukon river. In August, 1896, he left Seattle, bound for Circle City. At that time the "outside" world was ignorant of the wonderful deposits of gold in the Klondike district. Circle City, Forty Mile, and the Birch creek district were the centers of attraction for Yukon gold-seekers then. Mr. Gage returned home in the spring of 1897, and soon after wrote a series of three articles for the CHICAGO RECORD, which contain so much that is of interest and value relating to the Klondike and Yukon districts that they are reprinted, in a condensed form, in this book. Following is Mr. Gage's story of the Klondike:

"What it was that made the United States pay over to Russia some $7,200,000 for Alaska some years ago might be a hard question to answer now, for at the time of the purchase hardly anything but contiguity to the United States, it would have seemed, could have made such a country valuable to us. Recently, however, the attention of the people has been drawn more and more to 'our Arctic province,' and each year has seen an increasing number of prospectors make their way into this country,

until now the papers are full of glowing accounts of the richness of the Yukon country, and there is every indication that this year there will be almost a stampede of miners for what promises to be a new El Dorado. Last August the writer left Seattle for St. Michael island, the place of embarkment for the Yukon river boats. The trip along the Pacific through the Unemak pass and into Bering sea was made upon a boat chartered by one of the trading companies, and heavily loaded with food, clothing and tools, all of which was bound for the mines.

"At St. Michael, the first stop we made, our freight was transferred to the river boats, and we made the start for the Yukon mines. St. Michael island is about sixty miles from the mouth of the Yukon, in Norton sound, and one of the most forsaken places in the world. The trip out into the sound for the river boats—which are of the stern-wheel, Mississippi kind—is attended with much danger from squalls, and it was with much relief that we went smoothly over the bar at the mouth of the river.

"Steaming up the river, which has much the consistency of the Missouri and is about as crooked, we stopped occasionally for wood, which the natives had cut, split and piled, and for which they were paid in flour, tobacco and calico. We passed any number of Indian villages and missions, and finally reached Fort Yukon, the first place of importance. This is a post owned by a trading company, and is supposed to be exactly on the Arctic circle. From here to Circle City is eighty miles. When we got there it was already cold, and, though only October 1, we had had several snowstorms and there was an inch of snow on the ground.

"As we drew near we could see that the whole town was coming to the landing place to welcome us, for a steamboat arrival at a town in the Yukon generally

wakes up every man, woman, child and dog, and brings all to the river. At Circle City the boat was unloaded into the company's store, and it tried the next day to push on 250 miles further to the other post, but the running ice gave warning that the river would soon close, so we turned back and went into winter quarters in a slough at Circle City.

"Circle City has a population roughly estimated at 1,000, which includes the miners at Birch creek, about fifty miles from the town. These men come from all parts of the country, and they comprise the same cosmopolitan crowd that usually makes up a mining town. It being winter, the town was pretty well filled with miners, many of whom had come in to get their winter's supplies of food at the stores. At such a time the stores take on great activity, every one wishing to get fitted out and to get fitted quickly. Between those with money and those who were besieging the managers hourly for an outfit on credit until the following fall the cash buyers were the more patient.

"Much has been written about the exorbitant prices asked for food, but when one is told that the writer has seen many outfits put up to last for a year, and that there were many more outfits of such kind that cost from $350 to $500 than there were at a higher figure it will be seen readily that living is not much over $1 to $1.50 per day. Prices are high as they appear to us at home, but when one can get $1 an hour at the mines, it doesn't take long to insure enough food to live on.

"With the usual exaggerated ideas of a 'tenderfoot,' I expected to see men going around with two big guns and a knife strapped on their belts, and was prepared to dance when invited at the point of a gun. Nothing of the kind happened, however, and acquaintance with my

neighbors demonstrated that such 'doings' were not tolerated. A 'bad man' or a 'gun fighter' has no chance here. When such a one arrives and shows his proclivities he is warned to quit, and a second such evidence generally finds him very shortly—if he is lucky—in an open boat in the river. If he is unlucky—that is, if there are no boats—he will be likely to take passage on a log bound down stream, with emphatic instructions to 'move on and keep away from here.'

"As winter settles down and the snow becomes deep enough for good sledding, many miners start out for the 'diggings,' where the more thrifty put in the winter 'drifting' and 'burning,' when the conditions of the ground permit. Many, however, remain in town, preferring the congenial air and the companionship of the saloon and dance house to the isolation of the mines.

"The saloons and the two stores are the only places to go. Whenever one is looking for a friend and he is not in his cabin he is pretty sure to find him in a saloon, if he cares to track him to his lair. Here all the members of the colony congregate and play cards, tell yarns and occasionally get drunk. In the evening the dance houses open and the faro box is produced, and a man has his choice of dancing or 'bucking the tiger' to vary the monotony. In this way the miner in town gets his relaxation.

"Among these miners one must make his life as pleasant as possible. They come from everywhere, and the college man is no better there than the son of a day laborer. All are there to better their financial condition by the hardest manual labor, and here, if anywhere, true equality seems to exist. Almost all are well behaved. Occasionally a fight is started, but as the weapons are fists little damage is done.

"Law is enforced by what are known as 'miners' meetings.' On the American side there is no authority except that of the miners themselves, and through these meetings justice is dealt out. A man having a dispute with another involving money or land posts in conspicuous places a notice that there will be a meeting at a given hour and place to settle a dispute between him and another, whose name is posted. At the appointed hour nearly every one crowds into the meeting, a chairman and secretary are appointed and the assembly is called to order.

"The chairman calls upon the plaintiff to state his case, and when this is done the defendant is heard from. When the principals have testified witnesses are heard from, and this evidence is heard and digested by the audience. Questions are asked by any one who cares to do this, and then motions are in order. Any one can make a motion for the disposal of the case, which, when seconded, is put to a vote, and in this way the matter is adjusted. A committee is appointed to see that the verdict is carried out, which generally is done. This seems to be the only way in which justice can be dealt out. The system seems to have had its origin in a manly desire to give every one a 'fair show,' but it is generally the more popular man who gets the better of it. At the mining camp these cases generally are matters relating only to mining matters, but in the towns they embrace all sorts of questions, and it is here, more than at the 'diggings' that the popular one has a 'cinch.'

"As winter settles down and the days grow shorter and shorter the monotony of life becomes irksome. The cold is intense, the mountains seem a prison, and the knowledge that one has no choice but to stay it out, unless he takes the long overland trip, makes life dreary. The

mails are uncertain and far apart. No newspapers find their way in except in the summer. A man is out of the world, and almost as far removed from it as if he were in the moon. To a man who loves his home, his wife, his children and his friends the sense of isolation and helplessness is depressing. It seems to him that it would not be so bad could he hear from home and know how they all were, but the long months drag slowly by until the first of the year, when mail sometimes finds its way in, having left the states some three or four months before.

"To see the excitement that the mail from the outside makes, to see the eagerness with which men press up to the postmaster's desk for their letters, and the trembling hands as they are opened, and the filling eyes as they are read, touches the heart. The first two or three days after the mail's arrival find the morals of a town vastly improved, but this soon wears away, and the old habits are resumed.

"Dec. 19 the writer, after carefully making all needful arrangements, with twelve dogs, three sleds, two Indians and 1,200 pounds of 'grub,' bedding and camp outfit, started on the overland trip, a distance of 1,000 miles, to the sea coast. We left Circle City at 9 o'clock, just as day was breaking, with the thermometer at 46 degrees below zero. As we went through the town with the dogs yelping and our men yelling, every saloon door opened, and all inside came out to wish us good luck and a safe journey.

"It was turning the face away from many good friends —many whom I hope to meet again—and tackling a great unknown, but the many delays which had kept us back for two weeks made every one light-hearted and happy at getting started at last, and we soon passed through the town, down the river bank, and on to the ice

in the river, where a bend in the river soon hid Circle City.

"A Yukon sled, with dogs, is a peculiarity of the country. Our sleds were nine feet long, and two of them were chained together. On this 'double-header' we had seven dogs, and on the single sled five. The dogs are hitched together tandem fashion—one ahead of the other, the wheel dog having a whiffletree attached to his traces. From this is a rope running back to the sled, which, passing, as it must, between the driver's legs, necessitates the acquiring of a peculiar gait, for with each turn the dogs make—as the trail curves from side to side—the driver has to keep his feet moving from this side to that of the 'gee' string, as it is called, or he will be thrown down. On the right side of the sled is a strong, smooth pole, reaching about the hip, which is used for guiding the sled. Between the 'gee' string and keeping the sled from overturning a 'tenderfoot' is generally in a dripping perspiration after the first five miles are covered, and his legs get sore from the chafing of the rope, and the arm mightily tired from guiding the heavy sled.

"The clothing used in traveling is also peculiar to the country, mine consisting of a heavy suit of underwear, a sweater, a pair of mackinaw drawers, a mackinaw shirt, and a fur cap which came down about the ears and back of the neck and tied under the chin. The fur being next to the skin, that part of the head covered is very comfortable. Fur-lined mitts covered the hands, and on the feet were a pair of woolen socks, a pair of long heavy German socks or stockings, and a pair of moccasins, with straw in the bottoms. On the sled for extreme and windy weather were two 'parkas,' one of drilling and the other of fur. These resemble in appearance a long night gown open at neither the front nor back, with a hood for the

head. The drilling 'parka' has around the hood a lining of two fox tails. When the wind blows these drill parkas are put on and the hood is drawn over the head, which is a great protection for the face. The fur one is used for 50-degree and 60-degree weather.

"Our first halt was made for lunch about noon. One Indian took an ax and started for the middle of the river, where he chopped a hole through the ice for water. After filling the teapot he returned to where the sleds were, the other Indian in the meantime having gone up the bank for dry wood. In a few minutes we had a roaring fire, the water was boiling, beef tea was made, and this, with hard tack, constituted our first meal. The cups and spoons were quickly put away in the grub box, the sled lashed, and within half an hour we were again pushing on.

"At 2:30 o'clock it was getting dark but a full moon and a clear sky made it nearly as bright as day, so we kept going until 6 o'clock, when we stopped for the night, having made twenty-five miles and overtaken a party two days ahead of us. The Indians went up the bank like squirrels, and having picked out a good place for the tent, cleared away the snow and began felling some fir trees. These were soon cleaned of their boughs, which, being spread down on the ground where the tent was to go, were to serve for our beds. Our tent, an 8 by 10 wall tent, was soon put up; the stove (built especially for the trip, 18 inches wide and 30 inches long) was in position; the pipe (of the telescope kind) was in place; a fire was soon going and camp was made. The dogs were unhitched and were left mousing around for a good place to make their bed, while we prepared supper. Bacon was sliced up and fried, beans (already boiled) were warmed, baking-powder bread was baked, the tea was

set boiling. Then victuals were all divided into equal parts, and when supper was over there wasn't enough left to feed a snow bird.

"Our tin plates, cups and cutlery having been washed, a big square bucket about two-thirds full of water, was put on to the stove. When this was boiling flour, dried salmon and bacon were thrown in, the whole mess boiled a little, then cooled and divided into twelve equal parts for the dogs. When this was consumed and the dogs satisfied, robes were spread down, thick night caps and socks made of caribou skin were drawn on, every one crowded under his robe, the candle was put out and the first day of Arctic travel was at an end. As the fire went out and the heat with it, the cold began to get in, and it was not long before robes were drawn over the head and the camp was asleep.

"Six o'clock found us astir, and it was not long before a pile of flapjacks were fried, these with coffee being our breakfast. When this was dispatched the bedding was rolled up and tied, caps, moccasins and mitts were put on and the tent was struck and folded into a small bundle. All this was carried to the sleds by some, while others hunted up the dogs, now scattered around under the trees, where they had passed the night.

"A Siwash dog is the foulest, meanest, laziest and most profanity-provoking animal I ever met, and I suppose that it is the most abused animal that comes under the white man's lash. In Alaska these dogs answer the purpose of the horse in America, being used both for packing and for hauling. A good dog was worth $150 when we left Circle City, and almost anything that had four legs brought not less than $75. I have seen white men beat their dogs so unmercifully that one had to interfere. A heavy whip or a big stick satisfies the driver for

a time, but when on much of a trip a chain seems to fit their needs better. When a dog is beaten over the body and head with a chain it is pretty brutal, and many a dog has had ribs and legs broken and eyes knocked out. Strange to say, however, the white man as a rule is intelligent enough to provide for his dogs, even though he beats them more unmercifully than do the natives.

"Around an Indian village the dogs subsist almost entirely on refuse, as the natives at all times are either too hard up or too indifferent to give their dogs any food that a human being can eat. They will hitch up a team and start out for a journey with dogs looking so thin and weak that one doubts their ability to go five miles. If he follows them a day, however, he will be mightily tired at night. Talk of the lives of a cat! They are not to be considered in the same instant with the tenacity with which a Siwash dog hangs to life. Without exaggeration, I have seen an Indian start out with a team of dogs and travel eighty miles in three days, and there was not a dog but had to lean against a building to howl, so thin and weak were they. With all their filthiness and meanness they are, as a rule, hard workers and faithful. When they once understand that the driver is going to do the driving they get over long distances and haul big loads. In ordinary weather, when it is not colder than 25 degrees below zero, they can go for ten days without eating anything but snow, and still keep pretty strong and fat.

"Having made the morning start with much yelling, some urging and just a little profanity, the procession was soon under way, and with the good trail which we had a three miles an hour gait was not hard to keep up. Every few miles we would pass small piles or a cache of flour, bacon and canned goods which some husky miner

DAWSON CITY.

was slowly moving up the river. The failure of the last boats to get farther up the river had left quite a shortage of flour and bacon above, and the thrifty ones were 'pulling their freight' from Circle City to the Klondike, a distance of 300 miles. Most of them had only three or four dogs, and in consequence were compelled to double and triple trip it. One loads his sled to the limit of the dogs' endurance in the morning and travels until about 2 o'clock in the afternoon, when he unloads and piles his stuff near the trail and returns for the rest of the load, staying for the night at the place where he started in the morning. The next morning he takes the rest of his load, or as much as he can haul, and goes ahead to the point where the first of the load was left. The next day he pushes on in the same way, until eventually his destination is reached.

"One can imagine how much patience and hard work this entails, but stranger than this is the Yukoner's feeling of security that his cache when he leaves it will not be disturbed. Travelers pass right by these caches every few days, and there would be no one to oppose one's helping himself and passing on with but little danger of ever being caught, but every one lives up to the one commandment on the Yukon, 'Thou shalt not steal,' even though he breaks the others daily. There is some chance for a murderer up there, but when a thief is caught he is a goner, and his death is unmourned. This is the one great unchangeable law up there, and it is universally upheld. Whether from fear or whether from the knowledge that each man is often at the mercy of his neighbor, I don't pretend to know, but the fact remains that stealing in the Yukon is a crime that seldom has to be punished.

"Our course as day succeeds day is much the same.

Occasionally we strike a bad place where snowshoes are necessary, and where the trail is lost, and then every one goes stamping around the snow, 'feeling' for the trail with the feet. It is surprising how quickly one can tell after a little experience where the trail is when it is covered up by snow. Occasionally we pass a cabin, but it is always at the wrong time of day for us to use it for a camp. When a cabin is seen about time to camp the heart of the traveler is made happy, for he knows that there is a lot of work saved, because no tent goes up that night.

"Every miner is the soul of hospitality, and as glad to see you and as cordial in his welcome as he can be. He won't listen to your putting up your tent, even when his cabin is small. He won't let you cut any wood or fetch any water. He insists upon doing this himself, and reiterates, 'The shack is yours, pardner; make yourself at home.' He will often insist upon your sleeping in his bed, and is content with the floor for a bed, saying to your protests against routing him out, 'Now, look here, pardner; I can sleep in that bed all day to-morrow, if I want to, but you can't, so get in there.'

"Such hospitality warms a man's heart, because it is entirely disinterested. To offer to pay for any accommodations really would hurt your host, and, though his quarters are rough and crude, the warmth of his welcome makes his home a palace. When supper is dispatched he wants the news and gossip of the place you have left, and that is all. In the morning he will go with you to show you a short cut, if there be one, and the strong grip of the hand, the 'Good-by! Good luck, old man!' sends you on your way happy in believing that the country is full of just such men.

"Rough and uncouth are some of them; profane, and

with tendencies to get drunk when in town—almost all of them—but there is nearly always a heart that is gentle, warm and generous.

"After the usual number of upsets, dog-fights, burnt fingers and nipped fingers and toes, we arrived at Fort Cudahy, 250 miles from Circle City, and nine and a half days out. Here we were to rest our dogs and ourselves and overhaul our outfit, for from here out we must prepare ourselves to get along without being able to get any more provisions until Dyea is reached. A quarter of the distance had been covered, every one was in good shape and there was no doubt in our minds but that we could stand the trip.

"Fort Cudahy is a trading post of one of the Yukon companies, and it is about three-quarters of a mile from Forty Mile, where the other company has its post. It was on this creek that runs into the Yukon that gold in paying quantities was first discovered. Four days found us in shape to resume our march, and on Jan. 2 we made our start, with a bright, clear day, and the thermometer 43 degrees below.

"At Fort Cudahy I had secured a thermometer which registered 60 degrees below zero. This I nailed on the rear of the sled I was 'clerking' on, but later on, when the mercury in this went out of sight and one of the Indians mutinied, I began to doubt the wisdom of having anything that can be used to 'keep cases' on the temperature.

"As we passed Forty Mile we ran into a stretch of river that was rougher than any 'rocky road to Dublin,' and it was interesting (for about a minute) to notice how many times a minute a man would jump from one side of his 'gee string' to the other. Sometimes he wouldn't clear the string, and the result would be a trip, and if one

didn't come down on his face he would surely get on his knees. Then, too, the sled had 412 different motions which kept the hand and arm that were on the 'gee stick' or guide pole waving back and forth, up and down, in an effort to keep the sled from overturning. This lasted for about eight miles, and I honestly think if it had been 140 degrees below zero, instead of 40, I should have been plenty warm enough. As it was, I was soon dripping wet, a dangerous condition to be in, as one chills very quickly after perspiring. After the rough ice was over the trail was magnificent, as hard and as smooth as a board, for Klondike, the new El Dorado, was only fifty miles from Fort Cudahy, and the many men who had passed over the road before us had made the going good. We reached a cabin that night, where we found a stove, dry wood and four bunks, and you may be sure we occupied it.

"The miners of this section had 'chipped in' and paid for having two of these houses built. They were placed seventeen miles apart, so that they could be easily reached in a day's journey. They were open for every one who came along, and were a source of great comfort and convenience to all travelers. The next day we reached Dawson City, which is the town at the mouth of the Klondike river, and the supply station for the mines. There was little there besides a bunk house, a warehouse and a saloon, but we were welcomed royally as we ascended the bank, and warmly invited to 'come in and have something warm.'

"It was here that we became accustomed to associating with millionaires, for every one who was in the town had from one to three claims each on the new territory, and while many of them had to 'hang up' the drinks when they bought, they considered themselves every inch mil-

lionaires, just the same, for they had the ground and the gold was there, and they were only waiting for spring to get it out. One man I knew, who had started for Dyea thirty days before we left, had made heroic efforts to get by this place, but the temptation was too strong, and he abandoned his party, struck off up the creek, and, having found a man who was willing to part with an interest in his claim, my friend went down into his sack and weighed out $6,000 for a quarter interest in the property. Many were the happy men in this part of the country, for prospects had been wonderfully rich.

"A dollar and a half to the pan in three feet of gravel was held to indicate that $250,000 could be taken from that claim, for 'bed rock' was from twelve to twenty-five feet deep. One young man had repeatedly panned out $5 and $6 from one pan, and by 'drifting' and 'burning' had got to the surface what was roughly estimated at $30,000. Every one who passed his cabin was offered $1.25 an hour to help him work, but he had succeeded in getting only four helpers, every one else being bent on getting ground of his own.

"Two young 'tenderfoots' were working in an ignorant sort of way at burning their ground, thinking that it was necessary to get to 'bed rock' before they could expect to find gold. An 'old timer,' passing, asked them what prospects they were having, and was surprised when he was told, 'We haven't got to bed rock yet, and can't tell.'

"'Bed rock? you bloody fool, you don't have to wait till you get there to see whether you have struck pay dirt or not!' said the old-timer. 'Here, my son, give me that gold pan and I'll show you how to find out whether you are in it or not.' The young men were delighted to do this, and watch the old man 'pan out' a shovelful of dirt. The 'old timer' was paralyzed when he roughly estimated

the pan at $2, and with a 'Well, by ——, pardner! this is good enough for me,' he cut some stakes and became their neighbor.

He watched the young men the next day until they got to 'bed rock' (they didn't know they were there till he got into the hole himself), when he went down, and in a short time had scraped from the bed rock seventeen ounces of as pure gold as he ever saw.

"'Well, I am ——,' he said. 'If I'd been told of this I never would have believed it! I am pretty old young men, but if I can't make $1,000 a day shoveling into a sluice box alone (and I am a pretty poor shoveler), with such ground as that I hope I may never make another clean-up!'

"I don't suppose $50,000 would buy these claims today. Such was the news we heard when we had been in Dawson a little while.

"It was hard work to pass by such a chance, but we were a long way from Dyea, and had no chance to get any more grub than we had until we were out, and grub goes awfully fast sitting around a camp. The next morning at 6 o'clock we were off in a blinding snowstorm. The trail was covered, the wind blowing like the dickens, the dogs lazy and ugly and every man in the party on snowshoes, plunging more or less blindly ahead. It made one inclined to turn back.

"All our footsteps had been toward the sea and we did not begin then to do any 'double-tripping.' Having picked up a white man who wanted to get home, in spite of all the new El Dorados in Alaska, we left the town of rosy dreams and light hearts behind.

"We wallowed and sweat and swore and yelled and wallowed and swore many times until 11 o'clock, when we crowded in behind some drift wood, and after many at-

tempts got a fire going. We were some fifty feet from the sleds when we had the fire going, and everything seemed to be all right, but when we got back to where we had left them there was nothing but two drifts. At first I thought the dogs had run away, but when we dug down a little we found them all peacefully sleeping and warm as toast, the drifting, driving snow having quickly covered them.

"We made about twelve miles that day, but it seemed as if we had gone 112 when we finally made camp. The next day our hearts were lightened by seeing some men with horses who had broken a good trail for us. This made our progress rapid. When two men meet on the trail they always stop and pass the time of day. Each looks the other's face over carefully to see if there are any white spots visible, which, should any be noticed, are at once spoken of, and then comes the invariable question, 'Well, pardner, where are you going?'

"We were two and a half days going the fifty miles to Fort Reliance, or Sixty-Mile, and laid up here for the rest of the third day. There is a trading post here, owned and run by an old man named Harper. He is the pioneer of the country, having been in the Yukon for several years (something like eighteen, I believe). He came from far off Brooklyn, and gave us the warm welcome every one gets there. He insisted upon our staying to dinner and supper, and you may be sure that we did justice to the tender moose steaks, frozen potatoes and yeast-cake bread which he spread before us. He gave us a cabin for our Indians and ourselves, and the only way we could get even was by buying some moccasins our white passenger, Sam, needed. Some Indians with a toboggan having started along the trail about two hours ahead of us, we went smoothly and rapidly along our way the next morn-

ing. Five and one-half days brought us to Fort Selkirk, or Pelly river post, and here we rested a day and a half. From Pelly river to Dyea we had nothing ahead of us to look forward to should we need succor until we reached the coast, but the knowledge that we were half way and all doing well made the 500 remaining miles not so much of a terror after all.

CHAPTER XXIII.

THE MINERS' THERMOMETER.

LITTLE BOTTLES filled with mercury are carried by "old-timers" on the Yukon. These are handy substitutes for thermometers, for when the mercury is solid, the wise traveler in that country seeks shelter. Eli Gage describes this feature of arctic traveling as follows:

"At 6 o'clock on Jan. 15, with a beautiful full moon, a clear, blue sky with millions of stars, streaks upon streaks of the aurora flashing from one horizon to the other, and the thermometer 52 degrees below zero, we started on the last stage of our journey. When we struck the river again there was no trail, and so out came the snowshoes, which we wore all that day, the next day finding us on a better trail. We went steadily forward past Five Fingers, as five big rocks which stand in the middle of the Lewes river are called; on past McCarmick trading post, now deserted and forlorn; past the Little Salmon, where the ice was rough and the going slow, and so on till the Big Salmon was passed and 160 miles had been covered since leaving Pelly.

"That morning when we woke up it was to find the tent covered inside with frost, our robes over our heads stiff with ice, where our breath had come through, and cold as—Alaska. We started a fire, and soon had the stove red-hot. One could keep warm by getting close up against the stove, but then only that part of the body

was warm which was next the fire. We had struck some arctic weather for a certainty, and when I went out to see how things looked it was to find all the dogs shivering as if they had the ague. The thermometer was out of sight, so we could not tell how cold it really was, but we knew that it was lower than 60 degrees below, and that was enough.

"Old-timers on the Yukon regulate their traveling by the consistency of the mercury. A small bottle of this is always carried, and they keep on traveling until the freezes, when, as a rule, the majority of them go into camp and wait for it to moderate, for this indicates a temperature of at least 40 degrees below zero. The condition of our supplies made it imperative that we push on, for a cold snap frequently lasts for ten days, and were we to try to wait for warmer weather our food soon would be gone. The order to break camp caused a deal of rapid talking on the part of our Indians, and finally one of them came in and declared his intention of going back to Circle City. This was all we could get out of him, for, with the stubbornness of his race, he was 'just going.' We were in an unenviable position. Three hundred miles from our journey's end, 200 miles from the last trading post, the temperature at least 60 degrees below zero, the trail obliterated, the only Indian who could be relied upon to guide us out about to turn back—all these things, with the depleted condition of our larder was dismaying.

"Mr. Indian made a pack of his clothing and his robe, and when ready to start asked for some dried fish, which he didn't get. He made a start, but got only a little way when an argument with a loaded and cocked revolver, and the choice laid before him of returning to the tent and taking us out or trying to beat five bullets, which we promised would be sent after him at the first sign he gave

of going, soon weakened him and he returned in a sulky mood. It was a relief to see him turn back, but we were under a good deal of strain watching him from then on, and it was dreary work taking turns with Sam, lying awake nights with a loaded revolver between us to see that he did not try to get away in the dark. For the next eleven days the thermometer never got above 46 degrees below zero, and every one of us was more or less frozen on the face, fingers and toes.

"The worst and most pitiful part of the cold weather was its effect on the dogs. Three of them had badly lacerated feet, and when the cold snap struck us their feet quickly froze. It was pitiful when we started that morning to hear their howls of pain as their poor, sensitive feet broke through the crust at each step, and I could stand it only a little way, when they were unharnessed, one of the sleds was abandoned with everything that possibly could be left behind, and the dogs were at once killed. It seemed a harsh and cruel thing to do to kill these faithful fellows after they had served us so faithfully for 700 miles, but they were useless to haul anything, they would eat as much as the others, and to save as much for the good ones as possible demanded such a course.

"Speaking of the treachery of Indians reminds me of the experience of a friend of mine, who, at nearly the place where our trouble occurred, was led by his guide into a blind slough and then was abandoned. When my friend understood what had happened he took a Winchester and chased Mr. Indian five miles, hoping for at least one long-distance shot, but he never saw him, and he got well away to lead some other poor devil into just such another predicament.

"We pressed on daily as fast as we could, but our progress was slow because of the drifting snow. Nevertheless,

after five days we reached Mud lake, after passing safely through the White Horse rapids and Miles canyon, the most dangerous part of the Yukon, both in summer and winter, and the most awful and inspiring five miles of travel I ever have been through.

"At many places the river was open and great clouds of steam soon envelop everyone in a suit of white frost. The seething, rushing waters of the rapids were grand to look at, but the pleasure of such a manifestation was sharply tinged with anxiety as to whether the ice was thick enough to bear us. If we broke through we would go down that river about 400 times faster than we came up, and we would be under the ice instead of on top of it, to boot, which brought small comfort, even though our progress promised to be without effort. About three miles of this brought us to the canyon. Here were two routes which we could take—one up a hill about fifty feet high, with a pitch of about 60 degrees and along the walls of the canyon. To take this route meant packing on our backs most of our stuff, and the taking a good half-day to make the portage. The other way was through the canyon, if the ice was solid enough to hold us. We chose the latter and started. Imagine a canyon about fifty feet wide at the broadest place, and narrowing down to about twenty-five feet to its smallest point, with perpendicular walls of red granite about fifty feet high. A torrent of water rushing and roaring through this limited channel, the only foothold for travelers being the ice which had formed against the walls by the spray as it dashed against it.

"Even the dogs showed their fear and dislike of such a situation, and as we progressed farther into the canyon it was with difficulty that they could be urged forward, for the narrowing ridge of ice brought us nearer and

nearer the water. At places one man had to get on the side of the sled nearest the river and brace the sled from that side, as, on account of the slanting formation of the ice, the sleds were in danger of slipping into the water. One can get an idea of the rapidity of this stream here when he is told that boats go through here in the summer-time in about three-quarters of a minute, which means a speed of more than sixty miles an hour. When finally we got through all right our hearts were light, for we knew the worst and most dangerous part of our journey, until we should reach the mountains, was behind us.

"At Lake Le Barge, before entering the rapids, we found an Indian village, where we hoped to get some fresh meat and some dried salmon for our dogs, but we found them out of everything, and so hard up themselves (so they said) that they had no flour and no tea. They told us we could get dried fish at the Takish house. At Mud lake our supplies were so low and our dogs so thin that Sam volunteered to push on across Mud lake (or Marsh lake, as some call it), and keep going until he reached the Takish house. He was to buy up their supply, if they had any, and if they were out he was to offer them plenty of money to get out and hunt for moose, which he hoped they might get in a day or two at the latest. We watched him set out, hoping he would be successful, and it was not long before the glaring, white surface of the lake hid him from view. About 2 o'clock we could see ahead of us something on the trail, but what it was could not be distinguished until we got nearer, when we saw it was Sam with two men and a dog team.

"When we got together he told us that he had met the mail carrier from Juneau, who in turn had met a party farther back, who had told him that in case he ran short of grub to go up the McClintock river, at the foot of Mud

lake, where there were six prospectors who had 'plenty of everything.'

"This made every one happy except the dogs, who could not understand, so we all went into camp together and got some news from the postman as to matters on the outside. He told us that McKinley had been elected; that Sharkey had got a decision over Fitzsimmons in their fight, and, as he put it, 'times have been d——d hard all winter.' He had some newspapers which he let us read, but bribes, threats or persuasions would not make him open his sack and give us our mail. I had heard nothing from home since I left; whether my family was dead or alive I knew not, and yet here was this man with letters for me from them which would tell me all about them, and yet the fellow would not open his pouch. Talk about your Tantalus cups! This beat it to death. The next morning, with three of the best dogs, an empty sled and one Indian, I started to find the prospectors. We found the trail leading to the river, and went along it at a good rate, being consumed with joy at having heard of them and fear that they had gone.

"We came upon their cabin after awhile, and saw smoke coming out of their chimney, and so with a shout and a whoop we started for it on a run. They came tumbling out to welcome us, and I honestly think they were as glad to see us as we were to see them. When they heard our story every one went to work getting us up a feast. We had beans with salt sides, chocolate, boiled rice with raisins, and stewed peaches. These, with some sour-dough bread, was a meal I will never forget. They gave us a little bacon, some flour and cornmeal, and some sugar and salt, and this was all they could spare, but I never have felt so grateful for food before in my life. They were to leave the next day, so we had come pretty near

missing them. When we got back to our tent nine dogs were made happy in short order by a grand big feast. In the night one of the dogs, who was still hungry, got in and had a lovely lunch on the rest of our bacon, but every one had had one good feed in any case.

"The next day we pushed across Mud lake and stopped at the Takish house for lunch, but the Indians had all gone, and we would have been pretty hungry had we relied upon them to feed us. Lake Bennett was reached the next day, and on the following morning we had eaten our last meal. Our dogs were getting weak fast, and that day we had to push them hard to get through, for ahead of us were the mountains to be passed, the greatest danger of all, where travelers frequently are detained from going over for two weeks by high winds. If we ran into this sort of gale it was a case of either starving to death waiting for a quiet day or else taking a desperate chance of going over in a storm. About 4 o'clock we reached the canyon which led to the foot of the mountains.

"The snow had drifted in here, and in some places was forty feet deep. The sun had come out good and strong that day and made the snow soft, and into this the poor dogs would sink to their bellies at every step. We had to do most of the pulling, for our snowshoes kept us up, and so we struggled along, tired, hungry and discouraged until darkness was at hand. Then we went into our last camp, determined to go over next day or bust. So many prospectors had come into the Yukon over this route in the spring that there was but little wood left, and that green, but we managed to get the tent up and start a small fire. A drink of nice cold water and a short smoke made our supper, and soon every one was abed to forget his misery in sleep. The wind was roaring away on the top of the mountains, which was poor solace to us, our

only hope being that if it blew to-night it would be quiet on the morrow.

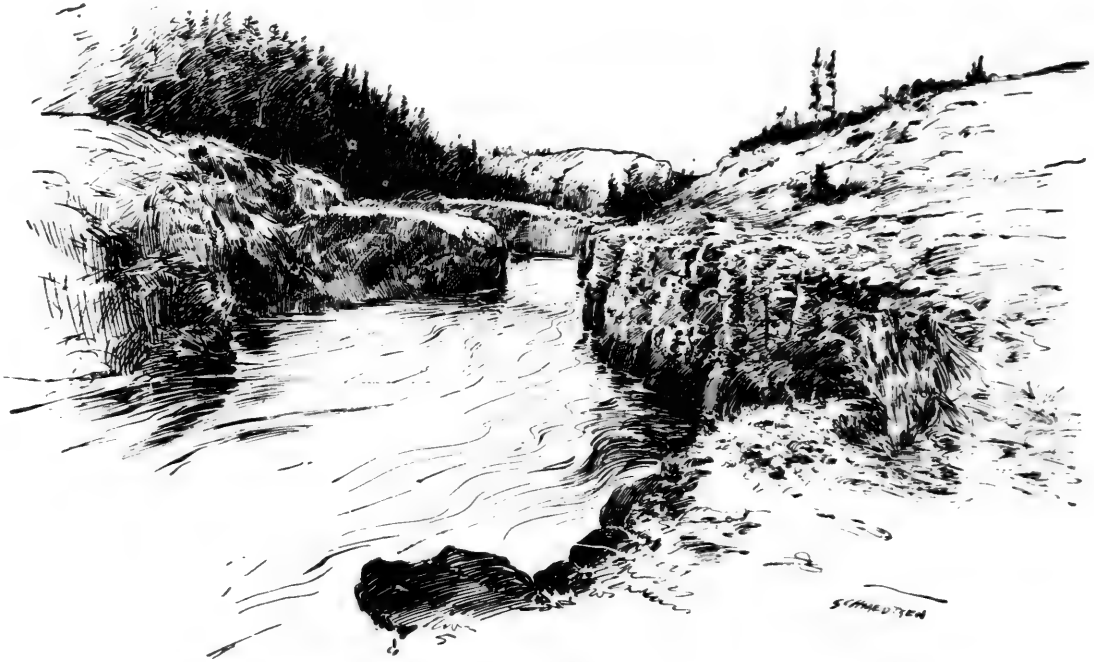
"At the first streak of dawn every one was up, and all the things were left behind in the tent except the dispatches and mail, one big fur robe, in case we got caught on top of the mountains and had to sleep there, the axes and the teapot to get water in. Our other sled was put in the tent, and nine dogs were hitched to the one sled and we started. It seemed quiet on top, so we had hopes of getting through, but the soft snow, the discouraged dogs and the steep ascents ahead of us, the fear that the Indians didn't know where they were, kept every one pretty quiet. Occasionally we would strike an ascent or pitch that was like a perpendicular wall, and up this we had to boost and haul the sled, the dogs being absolutely useless. About noon we got to what looked like a level place, and the snow being harder here, we made pretty good headway. Instead of being level, however, this ground was a series of ascents, which, because of the unbroken whiteness of the snow, looked flat. When the surface was broken by the snowshoes, however, and one looked back, it was with surprise that he saw a considerable rise. After getting over these, the soft snow indicated that this spot actually was level, and the dogs sinking in again, we finally had to cut them loose and pull the sled ourselves, intending to get this as far as the top and hoping that the dogs would follow along. We pulled right ahead, leaving the dogs and Sam (who foolishly had neglected getting snowshoes) behind.

"About 1:30 o'clock we came to the last pitch, the steepest of them all, and after getting the sled about halfway up we had to unload, and by tacking or going at right angles to our intended direction we were able at last to reach the top. Away down below were the dogs

and Sam coming slowly and laboriously along. The panorama of glittering white which spread out before us would have been beautiful indeed at any other time, but with twelve miles of descent still ahead of us, the dogs two miles back, and the wind blowing great guns on top, nature looked anything but beautiful.

"The Indians returned to where the dogs were and gave Sam my snowshoes. Then after awhile they all got up to where I was. The Indians said they found Sam coming along all right, but that he was coming on his hands and knees, as he was pretty well played out walking in snow up to his knees. Having hitched the dogs together again, we started to go down. The wind was pretty strong on top, but after getting to the bottom of the first pitch it was terrible. It was on our backs now, but, while this was more comfortable, it was more dangerous on the steeper pitches, as one was liable to lose his balance and slide with ever-increasing rapidity into the rocks which lined the road. After getting successfully down one pitch and ascending another, we unhitched the dogs again, and, leaving one Indian with the sled, we managed to drive the dogs down to the bottom of this pitch. The Indian then came down with his sled, steering it from behind, and quickly reached us. Here the wind and driving snow were worse than ever. The dogs would not go. They insisted upon wandering to the side and lying down, so we had to abandon them to get down ourselves, as it was getting dark fast.

"Snowshoes could not be used, as one could not get a footing firm enough to remain standing. The only way to break through the crust and keep from sliding was with the foot. For some distance one would sink to the knee and make fair progress. Then, without warning, he would strike a hard place that was solid, his feet would



MILES CANYON.

fly up, and the wind would carry him almost bodily ten feet through the air. If he struck soft snow he was lucky, but generally it was the hard, bare spots one landed on, and it hurt. When in this position the wind would blow the snow into one's eyes, nostrils and face, blinding and almost strangling him. Up again and forward, gasping for breath, was all one could do, but toward the end weakness and anxiety began to tell, and one felt many times inclined to stay right there. A turn of the canyon showed us a trail, and great was our joy at seeing some men stabling some horses, for we knew then that we were at Sheep Camp and our troubles over.

"They at the camp congratulated us on getting over, and showed us where we could get something to eat, and may be we didn't get over there quickly! We went into a cabin, which looked to us much as the land of Canaan must have looked to the children of Israel, and I am sure that Delmonico cannot put before me a meal that would taste so good as did our supper that night of bacon, potatoes, onions, and flap-jacks with syrup for dessert.

"Our bed that night was on the floor of this man's cabin and it was indeed comfort to lie there listening to the wind howling wildly outside, and had our dogs been with us there would have been nothing to be desired. Two days after the dogs were rescued—that is, all but one, and he, poor fellow, had been frozen to the ground and was quite dead. The storm we met coming over raged for two days, and though three attempts were made to get them, the men were each time driven back, until the weather moderated. When they got to Dyea they were a forlorn-looking lot, one of them being so exhausted that he had to be put on the sled and dragged in. Before I left, however, they were fat and well again, and in a few days

would be able to return, such is the recuperative power of the Siwash dog.

"Alaska has a great future before it. Mining will be the only industry there of any consequence, and while this is confined entirely to placer mining at present, in time quartz mines will be opened, and in spite of the hard climatic conditions there will be many people there. One has to go into Alaska to see how much superior to the United States is England in the care of its colonies and its people. At Fort Cudahy, on the Canadian side, there is a force of mounted police, who look after Canada's interests and are there to represent and preserve law and order. On the American side the only officer our government has sent in is a customs official.

"The companies upon whom every one in the country must depend for supplies send in yearly hundreds of thousands of dollars' worth of merchandise, and have absolutely no protection at all. They have at two or three different times felt their helplessness, and the people have forced them into doing things that were manifestly unfair and improper. Should a few lawless men, at any time, as immigration increased, make a determined rush upon them when conditions were favorable, there would be no protection for the companies except their own men. Such things never have occurred yet, but every one knows there is nothing to prevent it. If individuals can be broad enough and 'nervy' enough to send year after year into this country goods to the value of hundreds of thousands of dollars, it would seem as if the government which owned this country could well afford to have a representative there and enough force, either civil or military, to insure protection for every one.

"By the expenditure of a little money a good trail could be established into the country, and by joining with Can-

ada, which willingly would perform its share, a series of relay stations, or supply stations, could be built, which would insure easy and reasonably prompt communication between the Yukon and the outside. It is to be hoped that the present administration will do something for this country, and open up a region that for years will offer golden opportunities to the poor man who is willing to work."

CHAPTER XXIV.

THE WORLD'S GOLD PRODUCT.

ALASKA'S GOLD product and its effect on the world is concisely treated by R. E. Preston, director of the mint at Washington, in an interesting communication to the New York Herald. He gives the estimated gold product of 1897 of the United States with the probable output from other fields. His communication reads as follows:

"That gold exists in large quantities in the newly discovered Klondike district is sufficiently proved by the large amount recently brought out by the steamship companies and miners returning to the United States who went into the district within the last eighteen months. So far, $1,500,000 in gold from the Klondike district has been deposited at the mints and assay offices of the United States, and from information now at hand there are substantial reasons for believing that from $3,000,000 to $4,000,000 additional will be brought out by the steamers and returning miners, sailing from St. Michael the last of September or early October next (1897). One of the steamship companies states that it expects to bring out about $2,000,000 on its steamer sailing from St. Michael September 30 (1897) and has asked the government to have a revenue cutter act as a convoy through the Bering sea. In view of the facts above stated I am justified in estimating that the Klondike dis-

trict will augment the world's gold supply in 1897 nearly $6,000,000.

"The gold product of the Dominion of Canada for 1896, as estimated by Dr. G. M. Dawson, director of the geological survey of that country, was $2,810,000. Of this sum the Yukon placers, within British territory, were credited with a production of $355,000. The total product of that country for 1897 has, therefore, been estimated at $10,000,000, an increase over 1896 of $7,200,000. From this the richness of the newly discovered gold fields of the Klondike is evident.

"In this connection it is important to know what will be the probable increase in the several countries of the world, and for the purpose of comparison, based upon information received, the following table of the gold product of the United States, Australia, Africa, Mexico, the Dominion of Canada, Russia and British India for 1896, and the estimated product of these countries for 1897, is here given:

	1896.	1897.	Increase.
United States..	$ 53,000,000	$ 60,000,000	$ 7,000,000
Australia	46,250,000	52,000,000	5,750,000
Africa	44,000,000	56,000,000	12,000,000
Mexico	7,000,000	9,000,000	2,000,000
Dom. of Canada	2,810,000	10,000,000	7,200,000
Russia	22,000,000	25,000,000	3,000,000
British India ..	5,825,000	7,000,000	1,175,000
Totals	$180,885,000	$219,000,000	$38,125,000

"The world's gold product for 1896 is estimated to have been $205,000,000. In justification of the above estimate of the increase in the countries mentioned I may remark that of the United States is based upon the deposits at the mints and assay offices for the first six months of the year, which clearly indicate a largely in-

creased production, and that the increase for the year will aggregate $7,000,000. The gold product of Africa for 1896 is estimated to have been $44,000,000. For the first six months of 1897 the output of the Witwatersrandt mines, as shown by official returns, was 1,338,431 ounces, an increase of 333,928 ounces, as compared with the first six months of 1896. There is no doubt that the rate of production in the Witwatersrandt mines will be maintained for the remainder of the year, and their output of gold for 1897 will be fully $12,000,000 greater than that of 1896.

"The deposits of gold at the Australian mints for the first five months of the year clearly indicate a substantial gain in 1897 over 1896. Upon the basis of the deposits for the first five months at the mints the Australian Insurance and Banking Record for the month of June estimates that the gold product for 1897 of the several colonies will aggregate 2,700,000 ounces, of the value of $52,550,000. This would be an increase of $5,750,000 over the product of 1896.

"The gold product of Mexico for 1896 is estimated to have been $7,000,000. The information received indicates that the product for 1897 will approximate $9,000,000, an increase of $2,000,000.

"The Russian product for 1896 was $22,000,000; for 1897 it is estimated at $25,000,000, an increase of $3,000,000.

"The gold product of British India for 1896, from official information received, is estimated at $5,825,000. The returns of the mines for the first six months of 1897 indicate an increased production over 1896 of $1,200,000.

"From the data above given it is safe to estimate that the seven countries above named will show an increase in their gold output for 1897 over 1896 of $38,700,000,

and that the world's product for 1897 can therefore be estimated at not less than $240,000,000. There is no doubt that the world's product of gold will continue to increase for a number of years to come, as new mines will be opened up in all parts of the world, and, with improved appliances for mining and methods of extracting the gold contained in the ores, I believe that by the close of the present century the world's gold product will closely approximate, if not exceed, $300,000,000.

"I have spoken above of the addition likely to be made in 1897 to the world's stock of gold by the Klondike district, by the Transvaal, by the United States, Australia, Russia, Mexico, India, etc. Of all these gold-producing countries, of course, the Klondike is at present the one of most obsorbing interest. It strikes the imagination to-day as California did the minds of the '49ers. It will add in 1897 possibly $6,000,000 to the gold treasure of the world.

"Now as to the influence of such addition to the world's gold. The influence it will exert depends mainly on how many years the Klondike district shall continue a producer and how large its annual increment to the world's existing stock of gold shall be. There is every reason to believe that Alaska and the adjacent British territory are possibly as rich in gold as was California or Australia when first discovered. I have estimated that the Klondike district will in 1897 produce $6,000,000 worth of gold. It will add to this product from year to year probably for a minimum of one or two decades. And whether the gold comes from American or British territory is a matter of indifference, except to the owners, and, to some extent, to the countries producing it. The effect of the increase on the economic condition of mankind, on the rate of discount, the rate of interest, the

rate of wages, on prices and on monetary policies, of a newly discovered gold field of wonderful richness is the same, whether the field be located in American, British or Chinese territory.

"Now, the first influence that the new addition to the world's existing stock of gold will have will be felt by silver. In fact, it has already been felt by it. Gold is the natural competitor—we might almost say antagonist—of silver as a monetary medium, and every ounce of gold newly placed on the market deprives from 17½ to 35 ounces of silver of a possible employment as money that it might have. I say this because gold, weight for weight, is now worth thirty-six and six-tenths times as much silver, and because, at most, half of the gold discovered finds industrial employment.

"The new additions to the world's stock of gold, whether they come from the Klondike, Cripple Creek or the Transvaal, from India, Australia or Russia, will render bimetallism by the United States alone more difficult and more improbable than ever, and will even seriously imperil the slender chances that international bimetallism now has.

"Bimetallists have long been asking the question where the gold is to be found that is to take the place of the silver demonetized. The discoveries at Cripple Creek, in the Transvaal and on the Klondike are a sufficient answer to this question. The mines of the world have been turning out gold of late years in greater profusion than ever before. The year 1893 marks an epoch in this respect. In the report of the director of the mint upon the production of the precious metals in the United States during the calendar year 1893 I called attention to the fact that the world's output of gold in that year was the largest in history, amounting to $155,522,000,

and that it was 16.08 per cent greater than the annual average of the period of the greatest productiveness of the Californian and Australian gold mines.

"And in the report of the same series of the calendar year 1894 I remarked that the value of the world's production of gold in that year not only equaled the average value of both gold and silver in the period 1861-1865, but exceeded it by $11,204,600, and that the probability expressed by me in 1893 that the value of the world's output of gold in 1895 and 1896 would equal that of both metals in the years immediately preceding the beginning of the depreciation of silver had been changed into a certainty by the events of 1894, since the average annual yield of gold and silver of all countries in the period 1866-1873 exceeded that of gold alone in 1894 by less than $11,000,000. If the production of gold in 1897 reaches that figure, which I confidently believe it will, of $240,000,000, it will exceed the average yearly value of both the gold and silver product of the world for the period of eight years—1866 to 1873—which just preceded the beginning of the depreciation of silver—viz., $190,831,000—by over $50,000,000.

"Leaving out of consideration, therefore, the industrial employment of the two metals, the world now annually produces in gold alone some $50,000,000 more for monetary uses than it did in both gold and silver during the eight years (on an average) that preceded the beginning of the depreciation of the latter metal.

"On the supposition that silver has entirely ceased to be coined, the world is richer in 1897 in material for the coinage of full legal tender or standard money than it was at any former period of the world's history, and the indications are that it will grow richer in this respect in every succeeding year for decades to come.

"Hence my belief that the first effect of the new additions of gold to the stock already in existence will be an effect detrimental to bimetallism, whether national or international. There are some, I know, who think that the increased production of gold will have the contrary effect, and that it will lead to the remonetization of silver. They base their argument on this, that the increased production of gold will be followed by a depreciation of its value. This might be if the new demand for gold did not increase more rapidly than the supply. But the former is likely to exceed the latter.

"There is, in fact, at the present time, no limit to the demand for gold. The tendency of nations is toward the single gold standard. Apart from the United States, there is not, I believe, a country on the face of the earth that would not adopt gold monometallism if it had the ability to do so, with silver as a subsidiary or token coinage. There is not a country in Europe with any full legal tender silver coins but would replace them by gold coins if it could do so without too great a sacrifice. Germany would gladly put $100,000,000 in circulation, instead of its silver thalers. France and all the countries of the Latin Union would replace their full legal tender 5-franc pieces by gold could they easily get it. Russia's demand for gold is unbounded. Austria-Hungary cannot get enough, and so of every other country in Europe. Japan wants gold now that it has adopted the gold standard. Even China shows an inclination to follow the example of its conqueror, but that, of course, is out of the question. All South America is crying for gold. Chili wants it, Colombia wants it, Peru wants it. Venezuela has some, but wants more. Central America wants it. Even Mexico, the last stronghold of silver, is feeling the

burdensomeness of its present system in the height of its rate of exchange.

"More than this. The nations of Europe want gold, not only as currency, but as war material, for they have come to understand that gold—gold, not all kinds of money—is the sinew of war. Germany has a gold fund locked up in a fortress, and the accumulations of that metal made by other governments, ostensibly for different purposes, are really only so much war material, which the nations of Europe can no more dispense with than they can with a standing army or a navy. And where no such fund can be actually pointed to, as in England, there is felt the confidence that it can be had at any time on the credit of the nation. Then it must be remembered that all great loans are now made and must be made in gold. Only home loans are made in any other medium. This disposes of the contention that there is likely to be any depreciation in the value of gold consequent on the increased supply.

"Will the new additions to the gold stock of the world have any effect on prices? Should the increase of the world's production due to the yield of gold in the Klondike district, as well as in the Transvaal, be any way near as large as that due to the mines of California and Australia in the years immediately succeeding the discovery of the metal in those countries, it probably will, in time, especially if the new additions bear the same proportion to the already existing stock of gold in the world as did those of California and Australia. But any increase of prices that may thereby be caused will be gradual and may not be noticed for some years to come. It cannot be noticed until gold begins to depreciate in value, and of that there is no present prospect.

"Shortly after the discovery of gold in California and

Australia there was a very marked rise in the general level of prices, which writers on the subject have generally attributed to the decline of the value of gold at that time. French publicists were the first to call attention to this phenomenon. This was in 1851, 1852, and 1853. Chevalier wrote about it in 1857. In 1858 another eminent French writer published a book, entitled 'The Question of Gold,' in which he showed the greatness of the rise and the consequences, favorable or otherwise, which it might have for individuals or for states. The following year Chevalier took up the subject anew and endeavored to forecast the commercial and social effects which the decline of gold might have in the future. In England several statisticians noticed the same depreciation about the same time. Newmarch and Macculloch doubted it. But in 1863 Stanley Jevons demonstrated it in his essay, 'A Serious Fall in the Value of Gold Ascertained and Its Social Effects Set Forth.' Ten years later De Foville, after a long and laborious investigation, came also to the conclusion that there had been a decrease in the purchasing power of money.

"While the value of gold was thus declining there was a sudden and extraordinary increase in the supply of the metal. From 1831 to 1840 the annual production had not exceeded, on an average, 20,289 kilograms, or $13,484,000. From 1841 to 1850, after the rich auriferous deposits of the Ural, and especially of Siberia, had begun to be worked, the average annual product rose to 54,759 kilograms, or $36,393,000. The annual average was abruptly raised by the discovery of the gold diggings of California and Australia to 199,388 kilograms, or $132,513,000, from 1851 to 1855, and to an annual average of 101,750 kilograms, or $134,083,000, from 1856 to 1860. The production subsequently averaged 185,057

kilograms, or $122,989,000, from 1861 to 1865, and 195,026 kilograms, or $129,614,000, from 1866 to 1870. From 1493, that is from the discovery of America, until 1850, that is in 357 years, the quantity produced was 4,752,070 kilograms, or $3,158,223,000. From 1851 to 1870, in 20 years, the quantity of gold produced was 3,905,205 kilograms, or $2,595,996,000. This newly extracted gold, therefore, represented more than 82 per cent of the production anterior to 1850, and more than 45 per cent of the total production after 1493.

"It is easy to see that such a revolution in the conditions of production caused a decline of gold which became manifest in a rise of prices.

"The rise of prices was general at first. In 1858, according to Levasseur, the price of wheat, compared with the price in 1848, had doubled; the price of natural products, compared with the price in 1847, had increased 67.19 per cent; the price of manufactured articles compared with that of 1847 had risen 14.94 per cent; the average prices of all commodities had increased 41.61 per cent. The learned writer took care to remark that the rise of prices was not due exclusively to the decline of gold. He admitted, in the first place, that war and famine had caused a rise of about 20 per cent in the prices of natural as distinguished from manufactured products, and of 2 per cent in manufactured products, and that, besides, speculation in 1856 had swollen all prices to the extent of 5 per cent. Leaving out of consideration these transitory causes, natural products had increased, in 1858, by 42.19 per cent, manufactured products by 7.94 per cent, all commodities considered as a whole by an average of 25 per cent. From this rise of 25 per cent it was necessary to deduct 5 per cent in order to take into account the effect of the developments of industry and of the in-

crease of the number of consumers. As a final result he found that the greater abundance of gold had caused a rise of 20 per cent in prices. A decline in the value of money thus amounted to 16.67 per cent.

"In 1863 Stanley Jevons reached a conclusion almost the same. He believed that the decline of gold could not be less than 15 per cent, and that it might be more. In 1863, or thereabouts, the consequences of the decline began to be less apparent than in 1858. The general rise of prices was succeeded by movements of a very different kind. Several causes which Mr. Levasseur had already drawn attention to began either to counteract or to strengthen the effects of the plentifulness of the standard metal, so that in the case of certain commodities there came a decline instead of a rise, while in others the decline became greater still.

"In 1873, when Mr. De Foville published the results of his investigations concerning prices, the movement, which in 1850 was faintly outlined, became very marked and well defined. That writer showed that the prices of 1873 presented, as compared with those of half a century before, a rise of 90 per cent for foods of animal origin, of 30 per cent for vegetable foods, and 45 per cent for domestic liquors. He showed, on the other hand, a decline of prices of 35 per cent for mineral products, of 50 per cent for textiles and 45 per cent for chemical products, glassware and paper.

"By a combination of rises and declines of prices, according to the method which he called that of budget averages, Mr. De Foville came to the conclusion that there had been an increase of 33 per cent in the prices of commodities, corresponding to a decrease of 25 per cent in the purchasing power of money from the period 1820-25 to 1870-75.

PHOTOGRAPH TAKEN AT MIDNIGHT. LAKE BENNETT.

"It will be remarked that in this period of fifty years the quantity of gold produced almost trebled as compared with the 332 years between 1493 and 1825. The quantities produced amounted in 1825 to 3,926,510 kilograms, or $2,609,558,000, and in 1875 to 9,523,696 kilograms, or $6,329,448,000. Yet the decline of gold was only 25 per cent. It must be remarked, however, that this depreciation of 25 per cent was due to a combination of causes of various kinds, and was not due entirely to the abundance of gold. Between 1825 and 1875 an economic revolution was accomplished in the world greater than most political revolutions. To describe the revolution just referred to would be to write the industrial, commercial, financial and monetary history of those fifty years.

"Judging from the effect of the gold discoveries in California and Australia in gradually raising general prices from 1850 to 1873 or thereabouts, it would be only natural to conclude that the effect of the now rapidly increasing conditions made annually to the world's product in the Transvaal, Australia, the United States, Russia and in the Klondike district would have a similar effect, provided they bore something like the same proportion to the already existing stock of gold as did those of California and Australia to the stock already on hand in 1850. Since 1871 the production of gold has been about 5,200,000 kilograms, or $3,455,920,000, or will be by the end of the present year. Since 1886 alone the product has been about 2,718,000 kilograms, or $1,806,383,000. The gold product from 1886 to 1897 has been nearly 25 per cent of the total output of the gold mines of the world from 1493 to 1885, and the total product of gold from 1871 to 1897 has been approximately 60 per cent of the world's product of that metal from the discovery of America to 1870.

"Such an enormous production of gold since 1870

would lead one to believe that there would necessarily be caused thereby a great rise of prices. But as a matter of fact the contrary has, on the whole, been the case. A general decline of prices began in 1873, and notwithstanding the vast increase in the world's stock of gold just referred to, the decline still continues. Economists and statisticians of great merit believe that this general decline is due to what they call the appreciation of gold, although how there can be an appreciation of gold when the world's output of the metal since 1871 has been about 60 per cent of its total product from 1493 to 1870 they do not explain.

"This vast increase in the gold stock of the world has found expression in the lowness of the rate of discount, in the facility with which municipalities and states effect loans of great magnitude at a rate of interest lower than ever before in the history of the world, and in the vast accumulation of gold and silver bullion in the great banks of the world. The fact that prices have not risen as a consequence of the increase is undoubted evidence that the causes of their decline have their source elsewhere than in the scarcity of gold or of money in general. For, as remarked above, there is now more gold available for monetary purposes than there was gold and silver before the decline of prices began. Not only this, but the substitutes for money with which every business man is familiar have vastly increased since 1873. With the development of credit that now obtains in the world the quantity of the media of circulation can have no controlling influence on the prices of commodities.

"I know it is almost a despairing view to take that, notwithstanding the vast additions yearly making to the gold stock of the world, there is no immediate prospect of a general rise of prices from that cause; and yet, con-

sidering the simple fact that the addition to the world's gold stock since 1871 has been nearly 60 per cent of the world's output of this metal from the discovery of America up to 1870, and that the product since 1886 up to the end of 1897 (an estimate of $240,000,000 being made for that year) was nearly 25 per cent of the total product from 1493 to 1885, I can reach no other conclusion. The great addition to the world's stock of gold since 1873 is a demonstrated fact, but so also is the continued decline of prices.

"The advocates of silver maintain that the decline is due to the demonetization of that metal and the consequent scarcity of money. Yet money was never more plentiful, rates of discount and interest never lower, accumulations in the banks never greater.

"These facts conclusively refute their contention.

"May not the true cause be found in the stability of the value of gold—the most desirable quality in a money metal—and in the improvement in technical processes and the cheapening of transportation—an improvement and a cheapening still going on—as well as in the almost universal substitution of machine for human labor?"

It is reported from London that Russian expeditions have discovered gold fields in the vicinity of the sea of Okhotsk and that the government is about to send to the peninsula of Kamchatka to develop the supposed gold region there. This report caused great interest in the country, especially among those who are following closely the enormous gold developments of the world which have recently occurred. An examination of the map of North America will show at a glance that the great gold field of Alaska, which is now being developed, is a part of the same general line of mountains which supplied the enormous gold production of California; indeed, the same

general line which produced the gold of Peru, of Central America, of the United States and now of Alaska and the Klondike. This mountain range seems to cross from the North American continent to Asia at the Bering straits, and the extension of this general range across into Asia covers the very country into which the Russian government is pressing gold developments and the general search for gold. The report announces that a Russian expedition has discovered 12 gold regions in the vicinity of the sea of Okhotsk, and it believes that the western peninsula of Kamchatka will develop gold fields which will, as the dispatch puts it, "be a second California."

Marcus Baker, of the United States geological survey, commenting on the news from London, said:

"Whether the prediction of the Russians that they are to develop gold fields in Kamchatka which will rival the early history of our California gold fields is to be realized or not, certainly there can be no doubt that the gold of the world has enormously increased and is now increasing wonderfully. There are two distinct gold fields to-day which are producing gold in very great quantities, South Africa and North America. The Alaska fields are, of course, a part of the same general line of mountains which developed such wonderful gold deposits in our own territory less than half a century ago, and whether the mountains of Kamchatka and Siberia are a part of the same general system or not, it would not be surprising if these reports of large gold deposits there should also be confirmed. The fact is, there is a greater incentive to the production of gold to-day than ever before.

"There are two or three reasons for this. First, silver is so cheap that there is less incentive for its production, and the people who had formerly given their atten-

tion to the mining of silver are now looking for new gold fields; second, gold mining and gold production becomes easier every year, as new methods develop and new discoveries are made. Take the great gold fields of California, which were supposed to be worked out years ago; the cyanide process now gives promise of making them again productive, and it is quite probable that it will be profitable to work over all the rejected material which was thrown away by the men who covered that great gold field and to produce from it great quantities of gold. This is not unlikely to be the case further south, in Mexico, Central America and Peru where such quantities of gold were mined many years ago. Add to this the gold developments of South Africa, Australia, North America and prospective Siberia, and it is not surprising that the gold production of the world is more than keeping pace with the growth of business. As everybody knows, the gold production of the world has steadily increased during the past few years, that of last year having been greater than any in the known history of the world, while all indications now point to a still greater increased production for 1897."

Mr. Baker's remarks that the gold production of the world has increased with such rapidity suggests some inquiry upon this subject. The inquiry shows that the gold of the world to-day is nearly or quite three times as much as it was 50 years ago. Mulhall, who has been widely quoted in the papers of the United States in the past few weeks, indicates in his latest dictionary of statistics that the amount of gold in the world, coined and uncoined, 50 years ago, amounted to less than $2,500,000,000. Taking his figures for 1890 and adding the production since that time, it would appear that the gold of the world to-day, coined and uncoined, is over $7,000,000,-

000, being nearly or quite three times as much as it was 50 years ago. Had there been no increase in the population meantime there would thus be three times as much gold for each person now as there was half a century ago. But the population of the world has increased 50 per cent in that time, so that the amount of gold for each individual is therefore about twice what it was at that time. This, however, relates to gold in bulk and not gold money.

A further study of statistics shows that the increase in the production of the gold which is coined into money has been as great as the increase in the production of the metal itself. Fifty years ago only 33 per cent of the gold in the world was coined; now, 66 per cent is coined money. So it appears that while the amount of gold in the world for each individual has been doubled in 50 years, the proportion of that gold which has been turned into coin has also been doubled, thus making the gold money of the world four times as much per individual as it was 50 years ago.

This increase in gold, coupled with the increase in percentage of that metal which is coined is one of the important facts to be taken into consideration in the determination of the cause of the falling off in the demand for silver and the consequent falling off in its price.

CHAPTER XXV.

A MODEL INDIAN TOWN.

THE LITTLE CITY of Metlakahtla, in Alaska, is owned and governed entirely by Indians, and it has a history that is not paralleled in any other part of the world. William J. Jones, who has been sent to the Klondike country by the CHICAGO RECORD, visited the Indians' city on his way to the gold country and sent back a letter, describing the interesting community. He wrote:

"Metlakahtla is nestled on the east side of Annette island and is one of the first ports of call on the southeast coast of Alaska. From two mountains with frowning peaks which profile the clear western sky comes dashing down from their snow-capped summits a volume of water which is one of the scenic attractions of this picturesque coast. The city itself is in an advanced state of improvement, and the inhabitants, whose ancestors some forty years ago were blood-thirsty savages, have developed a remarkable character for utilizing the modern arts of civilization.

"A little over two score of years ago the Rev. William Duncan, representing the Church of England, first went among this tribe of Indians and sought to plant the first seeds of Christianity in their savage natures. They were then living on the Skeena river, in British territory, and what few white men had up to that time dared to invade their territory of savagery had been put to death. It required nearly thirty years to wean them from the teach-

ings of their ancestors of centuries gone by, and many times, so Mr. Duncan informed me, his life was in great danger; but never once did he betray the slightest suspicion of fear for his own or Mrs. Duncan's safety. By kind acts, religious teachings and trusting them in all things, the good missionary was successful in winning the whole tribe of some 500 people over to the appreciation of the advantages of religious and commercial civilization.

"At the opportune time he applied to the dominion government for the exclusive reservation of the site occupied by the tribe, and asked for protection against the encroachment of the whites. The request was refused and the proposition was laid before the American congress, and one of the last official acts of President Arthur was to sign a bill for the absolute transfer of Annette island to the tribe of Metlakahtla Indians. In 1888, under the direction of Mr. Duncan, the Indians moved to the island, laid out and began the occupation of the town site of Metlakahtla. What was then a wilderness is now a thriving little city, and is policed and governed in much the same manner as the municipalities of the states. An Indian magistrate, elected by the householders, adjusts all disputes and decrees judgments for violation of any of the city's ordinances. A council of ten delegates, which is elected annually by popular vote, adopts the laws and native police officers enforce its decrees. Not a drop of spirits is allowed on the island, and there is only one man of this colony of 800 Indians who uses tobacco, and he is nearly 80 years old.

"White people are discouraged from coming here; the Indians want to be left alone to pursue their work. A large salmon cannery affords employment for nearly 200 people in both canning and fishing, and every depart-

ment is in charge of an experienced Indian, and many of them are exceptionally well trained and skillful in attending to their difficult duties. Last year they sold over 18,000 cases of salmon for $3.25 a case. The machinery is of modern pattern, operated by steam and managed by natives. Close by is the sawmill, which manufactures a high grade of lumber, and has a capacity of 10,000 feet a day. Scattered throughout the city are six stores, all well stocked with staple articles of commerce, and it is particularly noticeable that there is a general lack of cheap jewelry or catch-penny Yankee notions. In all of the stores I only noticed one white shirt for sale, and it was marked at 55 cents. The streets are laid off on straight lines, and substantial broad sidewalks lead to all parts of the city. Each family lives in a neat one or two story cottage, neatly painted, and in the center of large-sized lots, in which grow all kinds of vegetables, flowers and house plants. The dwellings are painted white, and the rooms are as comfortably furnished as the majority of houses in more civilized communities. One feature in particular I noticed was the large, open and old-fashioned fireplaces that were so noticeable in the times succeeding the colonial days.

"A large school, divided into three departments, two of which are under the control of white people, and the other—the juvenile class—is taught by a native, furnishes the necessary educational facilities. The average daily attendance, I am told, is about ninety pupils. A handsome, large church building, the interior of which is tastily arranged, and with a seating capacity of about 600, is the place where these people assemble each Sunday for worship. One of the attractive features of this unique community is the native band of thirty pieces. The music is good, and many of the national airs are

played two or three times a week. The leader is a full-blooded Indian by the name of Ben Halden, and is 24 years old. He can play a tune on any instrument on the island, and the only instruction he ever received was from Mr. Duncan. The string band is exceptionally good and affords music for all dances and entertainments. An electric plant is being installed, and next winter every dwelling will be supplied with artificial illumination.

"Happy and contented as these people are in their little island homes, surrounded with all the necessary comforts of civilization, it has not been their province to escape from the attempted enforcement, or, rather, encroachment of what is regarded as modern civilization. Their little island was invaded by prospectors in their efforts to find gold, and some few miles distant rich and valuable quartz ledges were discovered and at once a company of rich men was formed in San Francisco to wrest the wealth away from the rightful owners. The good guardian of the community, the Rev. Mr. Duncan, went to Washington and told the president about his little colony, its prosperous condition, and asked to have their island freed from the threatened invasion of white men. The appeal was not in vain, and the secretary of the interior has just instructed the United States district attorney of Alaska to order the prospectors to vacate the island under penalty of prosecution for trespassing.

"The founder of this remarkable little colony, and which is about the only tribe of Indians on the coast which has not suffered or deteriorated greatly from the effects of religious contagion, is a short, little old man who is passing down the shady side of three-score and ten years. His eyes are bright, his step elastic, and his whole demeanor denotes the vast reserve and control over an abundance of will power. In his every effort

in behalf of his charges he is sincere, and their success parallels his own happiness. Already he realizes the approach of the first golden rays of the sunset of his existence, and is now planning and laying out the work for the education and guidance of his successor, who will soon be nominated."

The Episcopal mission at Circle City recently established a hospital, a much-needed institution in a place where every man is supposed to be for himself alone. Bishop Rowe of the Alaska diocese, recently gave some interesting facts about the field of mission work under his charge. The bishop, whose official residence is in Sitka, personally makes the round of all the stations of the interior, that he may get a better understanding of the work, which for the greater part is among the Indians.

There are three missions—St. James, Fort Yukon and Circle City—that administer to about 2,000 natives, 1,300 of whom are baptismal members of the church; and there are several other stations besides these. Much painstaking work has been done in offering them the scripture in a way that they can understand. Many of the Indians can read in their own language, which, as printed, consists of a literature of translations of the bible, prayer-book and hymn-book. These Indians seem particularly susceptible to religious teaching. At Anvik, near the mouth of the river, there are commodious, well-built mission buildings in a beautiful location. The Rev. J. W. Chapman is in charge. In addition to religious teaching there is a day and boarding school that has made noticeable progress in enlightening the people. A little education seems to show more quickly when applied to an Indian than it does on any other race. It shows on the surface. It smooths out the wrinkles on his forehead as if the tangled threads of life had been set aright. He

looks much better, and no doubt the effect is far-reaching.

The impressive form of the Episcopal service is rendered in church, with some additions, in that the catechetical part is repeated over again in the Indian language. The responses by the dark portion of the congregation are solemnly and religiously performed, even the little children giving almost painful attention and lisping the strange words, to the wonder of the white contingent. Then as best they can they follow somewhat laboriously in the singing.

A thousand miles is as nothing in Bishop Rowe's jurisdiction. It is more than that far from Anvik to Circle City, and yet they are spoken of as neighbors. The Rev. J. L. Prevost has charge spiritually of the few hundred miles of the river, which includes the mining towns and the post at the mouth of Tanana river, which latter place is called Fort Adams; the mission is designated St. James. Mr. Prevost has made that station his residence for two or three years. A boarding school for natives is there, and among other enlightening influences he has started a small newspaper, which is issued red-hot from the press twice a year, and it is a very interesting little paper, for it contains the news of the country—something of all that is going on—from Herschel island to the mines and from Bering sea to Mackenzie river. Mr. Prevost has a small steamboat at his disposal and is enabled to move thoroughly over his field. The work of religious teaching at Fort Yukon for the most part has been deputed to a native catechist.

Other protestant denominations have missions on the Yukon and along the coast off Alaska, notably the Presbyterians and the Methodists, and besides these the Catholics and the Greek church have long had a strong foot-

FORTY MILE CREEK AND TOWN AT JUNCTION WITH THE YUKON.

hold among the Eskimos and Indians. There are several Catholic schools that have done much for the natives.

The work of the protestant missionaries will be facilitated by the introduction of the little Siberian reindeer, provided the experiment proves a success, which now seems likely, although it will be rather slow in practical benefits. The Eskimos will need to be patiently taught new traits. Their natural inclination is to kill and eat. This likewise is the ruling passion of their dogs, and both must be trained and restrained.

The majority of the protestant missionaries are married, and, of course, have their families with them. There are those, especially of the Church of England missions, who have almost grown old in this particular field. Bishop Bompas of the Selkirk diocese has been in the country since the establishment of the mission, thirty years ago. It is said he can take a slab of dried salmon in each pocket and for a few days out-travel an Indian courier. And the worthy bishop, while extending that sway of the gospel, has taken some thought at odd times of worldly matters. His wealth is estimated at $250,000.

Dr. Sheldon Jackson, the philanthropist of Alaskan fame, has been for nearly twenty years identified with the country, and he has also become a wealthy man and owns valuable property in the United States. The Jesuits enter the field, of course, to stay. Father Barnum, a brilliant man, when asked when he was coming back to the world again, said:

"Oh, never, my child, to stay any length of time. A Jesuit, you know, volunteers for life. My place is among the Eskimos."

A story is told of two missionaries, both nominally of the same faith, who were established at Point Barrow, which is the very northernmost point of land in Alaska,

jutting away out into the Arctic ocean, and almost within signaling distance of the north pole. At the beginning of winter, when the nearest other white men were 500 miles away, they fell out with each other, and both got so mad that they wouldn't speak; and it was for keeps, too. During the long winter they lived in the same house, but neither ever said a word or paid any attention to the other any more than if he was not there. They read a good deal and stared at the wall right straight past each other, and when they got very lonesome they went out and talked to the Eskimos. When they came back and met again they didn't even recognize each other's presence so far as to look disgusted. Time passed very slowly with them. In fact, the missionary that came away in the boat when summer came admitted that it was the longest winter he ever experienced.

CHAPTER XXVI.

GAME IN THE KLONDIKE COUNTRY.

GAME is not so plentiful in the known gold placer area of Alaska as an enthusiastic Nimrod might wish. Still it is not necessary for everybody to feed on dog meat on the Upper Yukon river and in the vicinity of the Klondike gold field in winter, as a member of a party which was up there said several of the members did. He refused the dish, but at the same time he acknowledged that more than once after food had been thrown to the dogs, literally speaking, he had snatched it away from them before they could eat it. Fish which small worms had appropriated to themselves he did not hesitate to eat, he said, and was glad to get it.

That is one of the great troubles which will be encountered by persons visiting the gold field. The farther up the Yukon one travels the scarcer becomes the food supply, until in the Klondike region and thereabouts it ceases almost entirely. There is practically no large game, with the exception of one or two moose and reindeer, which have become separated from the rest of the herd and wandered out there. So that prospectors who intend visiting the field should not rely in the least on the resources of the country to feed them. There may be a few rabbits, ducks, and geese in the spring, which disappear very quickly. These are not sufficient to supply even the wants of the few natives who wander nomadically about the region.

Lower down the Yukon, at certain seasons of the year, there is abundance of game, probably from 400 to 500 miles from the Klondike river. The moose is about the largest of the mammals, while the reindeer is fairly plentiful. As the population has increased the game has correspondingly decreased, and in the winter the Indians there have had hard time securing food, as they are very improvident. During the season when it is abundant they never think of laying by a supply. There are beavers on the streams and various kinds of deer, bear, and caribou. In the winter months these go south and disappear almost entirely. The polar bear is found several degrees farther north, never appearing in that vicinity.

In the mountain streams which feed the Yukon river, up toward its head, near the Kathul mountain, there are mountain trout of good size and flavor. Many of these streams dry up in the winter, as they are fed by glaciers, which, of course, in cold weather are frozen entirely. The salmon is found in the Yukon, but only lower down, toward St. Michael. Occasionally they are caught high up on the Yukon, but the water is rather cold for them. There is a sort of fish known as the white fish which is found near the Klondike river, and is said to be excellent eating. It ranges in size about the same as our black bass, and is one of the chief mainstays of the Indians. In winter, if it is not too cold, holes are cut in the ice and the fish pulled out by means of bone hooks. They are more plentiful than any other kind, and the ice-cold water appears to be their natural habitat.

Early in the spring water fowl, such as ducks, geese, and swan, put in an appearance, but they do not tarry long, and wend their way after a stay of only a few days. They are very plentiful when they do appear, and the

natives kill them by hundreds. The trouble is, however, that things of the kind do not last as they do in warmer climates.

Reindeer formerly were seen in very large numbers on the Yukon, some two or three hundred miles from where the Klondike flows into it, and a gentleman who spent two or three winters there several years ago said recently that he had seen a herd of at least 5,000 cross the river on the ice in one day. He also saw moose and caribou in herds of large number, but such an occurrence is an unusual rather than a common one.

William Ogilvie had this to say in his report to the Canadian government in regard to the animals and fish found in the Yukon district:

"Game is not now as abundant as before mining began, and it is difficult, in fact impossible, to get any close to the river. The Indians have to ascend the tributary streams ten to twenty miles to get anything worth going after. Here on the uplands vast herds of caribou still wander, and when the Indians encounter a herd they allow very few to escape, even though they do not require the meat. When they have plenty they are not at all provident, and consequently are often in want when game is scarce. They often kill animals which they know are so poor as to be useless for food, just for the love of slaughter.

"An Indian who was with me one day saw two caribou passing and wanted me to shoot them. I explained to him that we had plenty, and that I would not destroy them uselessly, but this did not accord with his ideas. He felt displeased because I did not kill them myself or lend him my rifle for the purpose, and remarked in as good English as he could command: 'I like to kill whenever I see it.'

"Some years ago moose were very numerous along the river, but now they are very seldom seen, except at some distance back of it. Early in the winter of 1887-88 the Indians remained around the miners' camps, and subsisted by begging until all further charity was refused. Even this for some time did not stir them, and it was not until near Christmas that sheer hunger drove them off to hunt. One party went up the Tat-on-duc some fifteen or twenty miles, and in a short time was revelling in game, especially caribou. The other party did not succeed for some time in getting anything, although a large district was searched over, but finally went up Coal creek about twenty miles, and there killed eighteen moose in one day. They brought in two thousand pounds of the meat to the post, and sold it for ten cents per pound to the miners, with whom it was in great demand on account of the prevalence of scurvy in the camp. A boom in mining would soon exterminate the game in the district along the river.

"There are two species of caribou in the country; one, the ordinary kind, found in most parts of the northwest, and said to much resemble the reindeer; the other, called the wood caribou, a much larger and more beautiful animal. Except that the antlers are much smaller, it appears to me to resemble the elk or wapiti. The ordinary caribou runs in herds, often numbering hundreds. It is easily approached, and, when fired at, jumps around awhile as though undecided what to do; it then runs a short distance, but just as likely towards the hunter as from him, stops again, and so on for a number of times. At last, after many of them have been killed, the remainder start on a continuous run, and probably do not stop until they have covered twenty or thirty miles. When the Indians find a herd they surround it, gradually contract-

THE FIRST PAN.

ing the circle thus formed, when the animals, being too timid to escape by a sudden rush, are slaughtered wholesale.

"There are four species of bear found in the district—the grizzly, brown, black, and a small kind, locally known as the 'silver tip,' the latter being gray in color, with a white throat and beard, whence its name. It is said to be fierce, and not to wait to be attacked, but to attack on sight. I had not the pleasure of seeing any, but heard many yarns about them, some of which, I think, were hunters' tales. It appears, however, that miners and Indians, unless traveling in numbers, or specially well armed, give them as wide a berth as they conveniently can. Wolves are not plentiful. A few of the common gray species only are killed, the black being very scarce.

"The Arctic rabbit or hare is sometimes found, but they are not numerous. There is a curious fact in connection with the ordinary hare or rabbit which I have observed, but of which I have never yet seen any satisfactory explanation. Their numbers vary from a very few to myriads in periods of seven years. For about three years one may travel for days without seeing more than a sign of them; then for two years they are numerous, and increase for two years more, until finally the country is alive with them, when they begin to disappear; and in a few months there is none to be seen. If it is an epidemic that carries them off, it is strange that their carcasses are never observed in any number.

"It appears the martens are also subject to a periodical increase and decrease, and in this case a satisfactory explanation of the cause is also wanting.

"The principal furs procured in the district are the silver-gray and black fox, the number of which bears a greater ratio to the number of red foxes than in any

other part of the country. The red fox is very common, and a species called the 'blue' is abundant near the coast. Marten, or sable, are also numerous, as are lynx; but otter are scarce, and beaver almost unknown.

"It is probable that the value of the gray and black fox skins taken out of the country more than equals in value all the other furs. I could get no statistics concerning this trade for obvious reasons. The mountain sheep (bighorn), and mountain goats exist everywhere in the territory; but, as they generally frequent the sides of the highest mountains they are seldom seen from the river.

"Birds are scarce. A few ravens were seen along the river, and three or four remained in the vicinity of the boundary all winter. They were generally more active and noisy on stormy days than at other times, and their hoarse croaks had a dismal sound amid the roar of the elements.

"A few magpies were seen near Nordenskiold river, and a few white-headed eagles were also noticed.

"During the winter, near the boundary, numbers of small birds, somewhat resembling the 'chickadee,' were seen, but they were much larger and had not the same note. Of owls, not a specimen was met with anywhere. Partridges were very scarce, only half a dozen or so of the ordinary kind being noticed; but at the head of the Tat-on-duc and Porcupine, ptarmigan were abundant. Wild geese and ducks are plentiful in their season, and of ducks there are many more species than I have seen in any other part of the territory. Most of these were observed on the head of the Porcupine; but, having no means of preserving the skins, I had to come away without specimens.

"A very beautiful species of loon or diver was met with on the Porcupine. It is smaller than the great north-

ern diver, but marked much the same on the body, the difference being principally in the head and neck—the bill is sharper and finer and the head smaller; but its chief distinguishing feature is the neck, which is covered with long, beautiful dun-colored down for more than half its length from the head downward. I tried to kill one so as to get the skin as a specimen, but after I had fired three times at close range with heavy shot it seemed as lively as if I had not fired at all. I then killed it with my rifle, but the bullet so tore and mangled the skin that it was useless.

"With the exception of a small species, locally called the 'Arctic' trout, fish are not numerous in the district. Schwatka calls this trout the 'grayling,' but from the descriptions and drawings of that fish which I have seen this is a different fish. It seldom exceeds ten inches in length, and has fins very large for its size, which give it, when in motion, the appearance of having wings. Its dorsal fin is very large, being fully half the length of the body, and very high. It is of a brownish gray color on the back and sides, and lighter on the belly. It is found in large numbers in the upper part of the river, especially where the current is swift, and takes any kind of bait greedily.

"The flesh is somewhat soft and not very palatable. Lake trout are caught in the lakes, but as far I saw are not numerous nor of large size. They take a troll bait readily, and a few were caught in that way coming down the lakes, but the largest did not weigh more than six or seven pounds. Salmon came up, I was assured by several Indians, natives of the district, as far as Lake LeBarge, and are never found above it, but Dr. Dawson reports their dead bodies along the river for some miles above the canyon. I mention this to show the unreliabil-

ity of information received from the natives, who frequently neither understand nor are understood.

"On the way down salmon were first seen twenty or twenty-five miles above Five-Finger rapids. One can easily trace their passage through the water by the slight ripple they make on the surface and, with care, they can be taken by gently placing a scoop net in their way and lifting them out when they enter it. After coming up the river two thousand miles they are poor, and would not realize much in the market. At the boundary, in the early winter months, the Indians caught some that were frozen in on small streams, and fed them to their dogs. Some of these I saw; they were poor and spent."

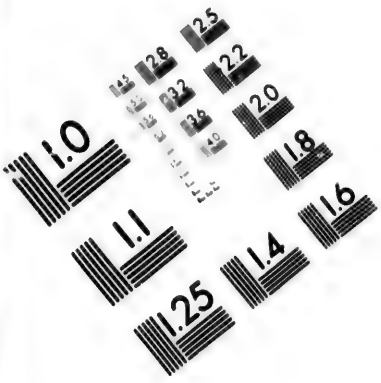
CHAPTER XXVII.

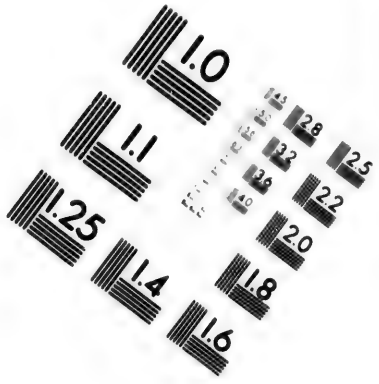
DOGS, INDIANS AND REINDEER.

PROSPECTORS and miners in the Yukon country have to deal with two propositions — dogs and Indians. Both are hard to solve. The dog population of the northwestern states of this country has been reduced considerably since the Klondike fever set in, and in Seattle, Tacoma and Portland dogs, good, broad-footed, thick-necked, shaggy-haired canines, have become more valuable than horses.

This unique condition of affairs results from the great and growing demand for dogs to be used in hauling sledges in the Yukon country, Alaska. While thousands of horses for which their owners cannot get $3 a head are roaming over the plains of eastern Washington and Oregon, good-sized dogs are bringing $15 to $30 each in the local markets of Seattle and Tacoma. At Juneau their value is double that sum and on the Yukon river a good dog brings from $100 to $150. To the Yukon miner the dog has become what the reindeer is to the Laplander and the pony to the cowboys of Texas and Mexico—a beast of service, and a most valuable one.

Every steamer sailing for Alaska since the spring of 1897 past has borne northward several dozen dogs destined for service in front of heavily laden sledges. They are taken by boat to Dyea, at the head of salt-water navigation, and there are put in harness to assist in hauling the precious outfits and supplies over the Chilkoot pass





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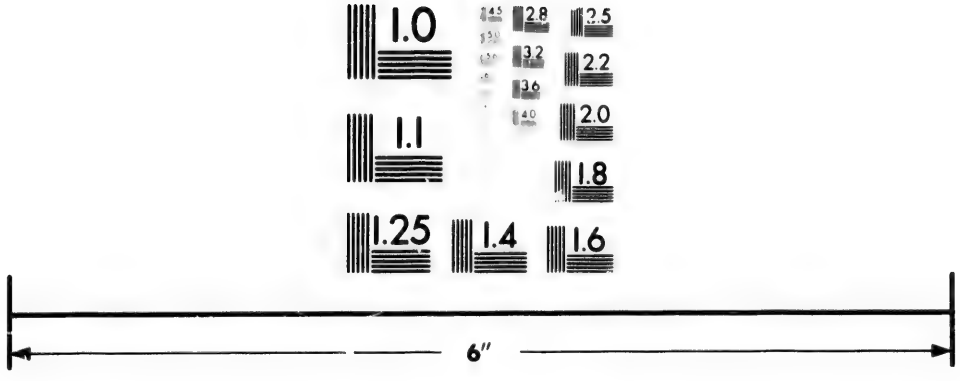

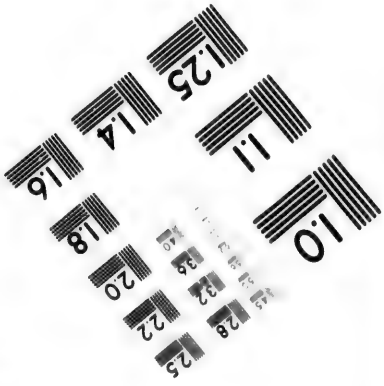

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and down the farther slopes to the series of fresh-water lakes forming the headwaters of the Yukon's tributaries. Up to May, when the ice breaks up, dog teams slide over the smooth surfaces of these lakes with surprising rapidity, considering the loads they haul. There are portages to be made around dangerous rapids, and here again their services are invaluable. Arrived at the central posts, such as Dawson City, Forty Mile or Circle City, both men and dogs take a rest, but in most cases the dogs are put into harness again for a trip to the diggings.

The sledge dogs are too valuable not to receive good care where that is possible. Their owners' first care in this respect is to obtain plenty of food for them, which consists principally of fish, usually salmon, caught in the Yukon river by the natives. An ordinary dog will eat daily two pounds of dried salmon, which equals seven pounds of fresh fish. At Forty Mile last winter dried salmon sold at 20 to 50 cents a pound, and bacon that was fit only for dogs to eat sold at 37½ cents a pound. In some of the larger camps on the Yukon dog boarding houses have been established. Here the dogs are cared for properly at from $6 to $15 a month, according to the season and the price of the food.

The native Yukon dog is much more valuable than the importations from Puget sound. The dogs must be acclimated in order to stand the severities of the winter. It is found that dogs taken from Montana and Dakota endure the Yukon winters with less suffering than those bred in the milder climate of Puget sound. Two splendid native Alaskan specimens were brought to Tacoma, their owner finding it cheaper to pay their passage on the steamer than to have them boarded at Dyea during his trip for supplies. The animals weighed eighty-two and eighty-three pounds, the larger one having cost its

owner $117 at Circle City. This one is a cross between a dog belonging to a family of missionaries that went to the Yukon years ago and another ancestral dog that hailed from the shores of the Mackenzie river. These animals are stout, well proportioned, well muscled and have exceptionally short and heavy necks. Their ears are short and lifted like those of the Eskimo dog. Their coats are dark, and the hair, while not close, is smooth and heavy enough to form a comfortable protection against the arctic winters, and also against the Yukon mosquitoes.

A specially prepared dog food made out of meal and coarse meat from the packing houses is now being manufactured in the form of a cracker, and seems likely to come into general use.

Buckskin moccasins are provided by many owners to keep the feet of the faithful little draft animals from being worn raw on the ice and snow. They are about nine inches long and made much after the pattern of a child's stocking. Pack saddles are also coming into use this spring. These are so arranged that the dogs can carry a weight of from ten to twenty pounds, besides dragging a sled. The saddle-bags fall on either side and straps are arranged to prevent the pack from sliding forward or backward.

A Tacoma dealer has built up a large business in the manufacture of dog harness. A suit of harness usually weighs two and a half pounds. The collar is made to slip over the dog's head, obviating the necessity of buckling it about the animal's neck when the driver's hands are cold and numb. The collar is made of leather, faced with sheepskin and stuffed with deer hair. The hames are inclosed in the collar, and attached to them are

buckles for fastening the traces. On each collar are placed rings, to which the traces of a dog in the lead may be attached, making it easy to drive teams in tandem. Traces to the harness for native dogs are made of heavy web material, because the dogs eat the leather harness. They devour the collars on sight if permitted. This peculiar craving makes is necessary to keep the animals separated when harnessed, so they will not chew one another's collars. When the web traces become oily the dogs chew even them, and it is only a matter of time when the web trappings become food for their hungry wearers.

Several in-going parties have taken in burros and small horses instead of dogs for draft and general-service beasts. It is said that one pony or burro will draw 3,000 pounds on the frozen surface of a lake. Another advantage claimed is that they can be used more profitably as pack animals during the summer. A Circle City firm works a train of thirteen horses, hauling from 800 to 1,300 pounds each on sleds and requiring but three drivers. All returned miners, however, unite in declaring that the dog is holding his own well against the competition of the horse, and they say that large numbers will be needed on the Yukon for years to come. It is expected that within a few years the government will be able to supply many reindeer from the herd now established at Point Barrow.

E. M. McClaine and A. M. Sterns, two eastern miners, have started north with a new kind of freight conveyance. It is a water and ice craft combined. The main part is a box, built like a large watering trough, eight feet long, twenty-two inches wide across the bottom, three feet across the top and twenty-two inches high. Beneath the box are two runners, five inches high and a little longer than the bed. The party had six of these con-

veyances, which will be used as sleds on land and boats on water. For use in the water two of the sleds will be joined together by blocks at the ends, making a stronger water craft. To each side of the conveyance a log will be attached to render it more buoyant. The trough-like boxes are made of galvanized iron, and it is intended to sell them on the Yukon for bath-tubs, the usual price of a bath there being $1.

The standard dog sled consists of a narrow box four feet long, the front half being covered or boxed in, mounted on a floor eight feet long resting on runners. In this box the passenger sits, wrapped in rabbit skins so that he can hardly move, his head and shoulders only projecting. In front and behind and on top of the box is placed all the luggage, covered with canvas and securely lashed, to withstand all the jolting and possible upsets, and snow-shoes within easy reach.

An important item is the dogwhip, terrible to the dog if used by a skillful hand and terrible to the user if he be a novice; for he is sure to half strangle himself or to hurt his own face with the business end of the lash. The whip has a handle nine inches long and lash thirty feet, and weighs four pounds. The lash is of folded and plaited seal hide, and for five feet from the handle measures five inches round, then for fourteen feet it gradually tapers off, ending in a single thong half an inch thick and eleven feet long. A skilled driver can pick out a dog and almost a spot on a dog with this lash. The lash must be trailing at full length behind, when a jerk and turn of the wrist causes it to fly forward, the thick part first, and the tapering end continuing the motion till it is at full length in front, and the lash making the fur fly from the victim. But often it is made to crack over the heads of the dogs as a warning.

The dogs are harnessed to the front of the sled, each by a separate thong of seal hide, all of different lengths, fastened to a light canvas harness. The nearest dog is about fifteen feet from the sled, and the leader of an eleven-dog sled, with bells on her, about fifty feet, the thongs thus increasing in length by about three feet. When the going is good the dogs spread out like the fingers of a hand, but when the snow is deep they fall into each other's tracks in almost single file. As they continually cross and recross each other, the thongs get gradually plaited almost up to the rearmost dog, when a halt is called, the dogs are made to lie down, and the driver carefully disentangles them, taking care that no dog gets away meanwhile. Often one of the men must run ahead on snowshoes for the dogs to follow him.

The Indians, as the natives of the Yukon are called by miners, are said to be dull, and unreliable. William Ogilvie, the Canadian land surveyor, who studied natives while he measured triangles, summed up his observations of the Indians of the Yukon in the following language:

"I had very little opportunity to learn anything of the language, manners, customs, or religion of the natives on my way through their country, my time with them being so short, and none of the whites whom I met in the district seemed to possess any information upon which I could draw. I got a few items, but as they may or may not be facts, I shall not report them. The statements of every one I met, however, pretty well establish that by one of their laws inheritance is through the mother.

"As far as possible I have obtained the numbers of the various bands along the river. Beginning at the coast the number of the Chilkoots, as stated by Commander Newell, was 138 souls, of whom about forty were full grown men.

"As far as I could gather from G. Carmack, who lives with the Tagish Indians, and has one of them for a wife, there are of them about 112 souls all told, but many of these are almost permanently located with the Chilkoots, some of the latter having Tagish wives.

"The Tagish complained bitterly to me, as well as they could, having only a few words of 'Chinook' and English with which to convey their meaning, of the tyranny and robbery of the Chilkoots. Klohk-Shun, the chief of the Tagish, said, 'Chilkoot all same dog,' imitating the snapping action of a dog as he said so. Those who have had any experience with Indian dogs can appreciate the comparison. These people are scattered along the river from the Teslintoo up. The only market they have at present for the few furs they collect is on the coast at the head of the inlet, and they say they are robbed of half their goods on the way there by the Chilkoots. On my way to the summit I met three or four Tagish coming in with two packs of furs, to trade. Meeting me afterwards at the summit, one of them informed me that they were met a short distance outside the village, and one of the packs was taken from them by force, and the other paid for at forced prices. Much of this talk I have no doubt was intended to create sympathy and induce charity, as they, like many other Indians, are inveterate beggars; but I have no doubt they are little more than slaves to the Chilkoots, and are both robbed and swindled most barefacedly.

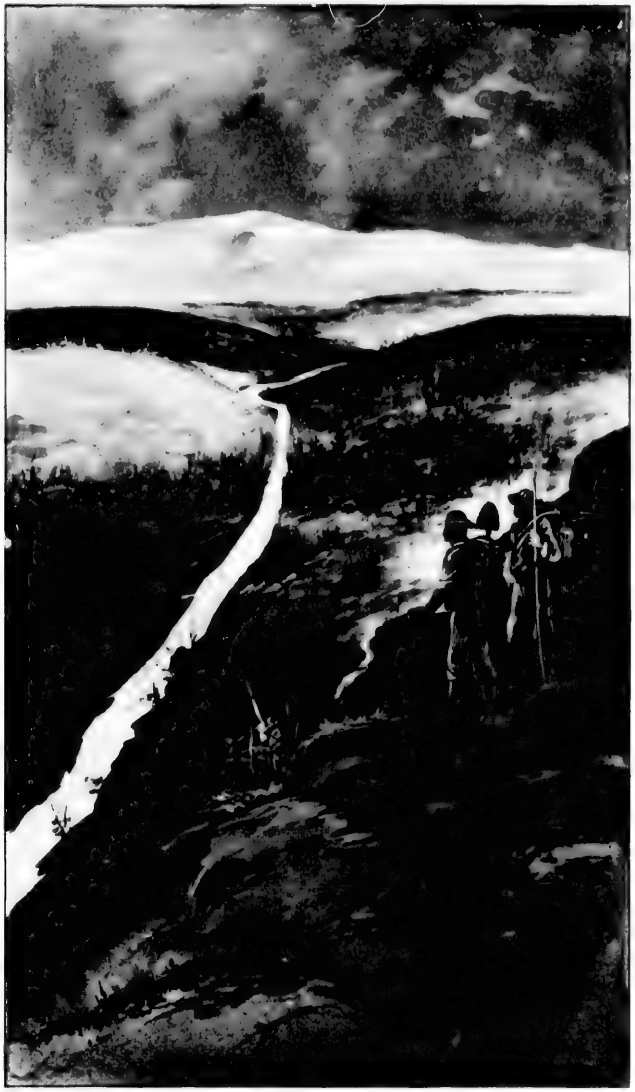
"Below Five Finger rapids I saw two families of Indians, consisting of ten or twelve souls, very poor looking, and the most stupid I have ever met. Wanting to buy some tea and other stuff of me, they tendered in payment the tin stamps that are put by some manufacturers on plugs of tobacco. These, they signified to us,

had been given to them in exchange for furs by the coast Indians. It is possible they had got them from the Indians on the tobacco, and were trying to swindle me, but I am inclined to think not.

"At Stewart river there are two Indian men, two women and two children. One of the men had picked up a few words of English from the miners and traders the winter before, and, as far as could be, was very communicative. He informed me that there were about thirty families of Indians up the river twenty or thirty miles, 'one day,' as he expressed it. They were living on salmon, and had no trouble in catching all they required.

"Between Stewart river and Forty Mile river three families were met with, but, as they knew neither English nor 'Chinook,' no information as to their headquarters could be got from them. It is probable they were a part of the band located at Fort Reliance. Mr. Harper informed me that the band at the latter place numbered about twelve families, or, say, 70 souls. At Belle Isle, fifteen miles below the boundary, David's band is located. It numbers 65 or 70 souls. About 100 miles below the boundary Charley's band has its headquarters. It numbers about twelve families, in all about 66 souls. I came more in contact with the last two bands than with any of the others, as David's band was only twelve miles from my winter quarters for some months, and many of them were frequently in the house with me for a night or two on their way to and from Forty Mile river. A missionary sent over by Bishop Bompas, who is in charge of the diocese of Mackenzie river for the Church Missionary society of England, was stationed with David's band all winter.

"Some years ago, when Archdeacon McDonald, now in charge of the mission work at Fort McPherson, on



PROSPECTORS STRIKING A NEW CREEK.

Peel river, was stationed at Fort Yukon, and afterwards at Rampart house, Charley's band used to resort to those posts for their trade, and that gentleman taught them to read, and instructed them in the principles of the Christian religion. It is pleasant to be able to testify that they have profited by this instruction, and still retain a loving memory of those times. They hold every Sunday a service among themselves, reading from their books the prayers and lessons for the day, and singing in their own language to some old tune a simple hymn. They never go on a journey of any length without these books, and always read a portion before they go to sleep. I do not pretend that these men are faultless, or that they do not need watching, but I do believe that most of them are sincere in their professions and strive to do what they have been taught is right. They are greedy and selfish in their transactions with whites, but I think much of that is because they have probably never had the sin of undue greed put forcibly before them by their pastor.

"David's and Charley's bands manifested to me a much stronger sympathy for Canada than for the United States. Some of this feeling might be due to policy, for aught I know, but hitherto most of their dealings and all their education have been Canadian. The total number on the river is 482, of whom 136 are below the boundary, leaving 346 domiciled in Canada. It does not appear that any live permanently on the upper Pelly or Stewart."

Omer Maris, writing from Juneau, touched upon one phase of Alaskan Indian life seldom heard of. That portion of his letter which treats of "Indian Slavery" reads as follows:

"The other day a gentleman pointed out two Indians passing on the street and remarked: 'There goes a slave.'

I had heard the statement made that slavery yet exists among the Alaska Indians, but it was a surprise to be confronted with an actual remnant of the institution almost within the shadow of a federal court house. Of the two Indians, the slave and his master, to whom my attention was directed, the slave was rather the better dressed, and he was also the more intelligent looking. Since then I have observed the pair several times, generally working together on some transient job, like sawing wood, apparently on an even footing, although the master seems to do more sitting around. I would judge from appearances that the slave is the better contented of the pair, for the other seems careworn with the responsibility of keeping him at work.

"The custom of holding slaves, up to a few years ago, was very common among all the tribes. Children stolen from one tribe by members of another, and captives taken in battle and their descendants, were held in bondage. Some of the wealthier chiefs reclined in oriental style—as far as compatible with the fur and fish business—and had scores of slaves to do their bidding.

"Of course the government has interfered as far as practicable to put a stop to the custom. A few years ago the captain of the Wachuset, acting under instructions from the government, assembled all the coast tribes within reach and announced through interpreters that they must give up their slaves, and offered to the latter full protection. Many of the chiefs complied with the order, but there are still many others who by threats and 'ghost stories' are able to control their slaves. The Alaska Indians will unflinchingly face many dangers, especially those of the sea, but they are particularly afraid of being killed—that is, by their fellow-man—and the chiefs take advantage of this trait to breed and train into their slaves

the idea that other Indians and even whites will kill them if they attempt to run away. This idea, together with the fact that the slaves are generally kept as much as possible from contact with the whites, has served to perpetuate the custom, and there is still an aggregate of several hundred Indians held in bondage.

"The Indians are not especially cruel masters. The condition of slavery seems to rest lightly on its subjects. The natives are kindlier natured than are those farther south, and Father Barnum tells me that the farther north one goes the better natured he finds them. He says that in all of the five years that he has been among the Innuits of the Yukon delta he has never seen a fight or violent disagreement among the native people. He thinks that the climate has something to do with it, and it may be true, but it would be hardly fair to draw the correlative inference that the best people or the highest culture will sometime be found in the vicinity of the north pole."

The "Klondikers" who will take the "overland" route to the placer mines will not meet the Bering strait "huskers," as the Eskimos are called. A correspondent of the CHICAGO RECORD spent a season with the Bering strait Eskimos, and the interesting letter he wrote about them reads as follows:

"In all the years since the exodus from Lapland the Bering strait Eskimo has clung to his primitive customs. He still lives in tents, though whereas formerly they were made from walrus hides or deer skins, in recent years he has substituted the more convenient drill or canvas, obtained from whalers or trading stations. Six months (May to October) he moves about the coast, fishing, hunting or wholly idle. The other six months are spent in his baraboras or dugout. In April, when the ground with which his hut is covered on side and top begins to thaw and drip,

he again takes to his tent on the beach, and immediately makes preparations for his seal hunt, which provides him with staple foods—seal oil, blubber and meat—besides fur for clothing and for barter with the whaler.

"Sealing being over he returns home and engages in fishing until whalers and other ships collect at Point Spencer, some time in June or July, when he again launches his omiak and departs for that place. Here he stays until the ships leave, fishing, trading or enjoying a general good time. In accordance with his industry he lays in a supply of sugar, flour, molasses, powder, lead, caps, knives, axes, needles, thread, etc. This done, he journeys into the lakes through Grantly harbor and finishes his fishing, returning some time in October.

"In these days an extended trading goes on among the Eskimos of the various districts. Deer skins and deer legs and sinews are brought over from East cape in large quantities and bartered for red fox skins, in great demand on the Siberian side. Ogorooks, or large seal skins from the Kotzebue sound, used for soles in the manufacture of their boots, are exchanged for powder, lead, tobacco and caps. Ivory and whalebone in great plenty comes from Indian point and King's island, and are traded off for tobacco, knives, calico, flour and the like. From Golovin bay and Norton sound come the mink, lynx, red fox, beaver and wolf skins, all in great demand among the Alaskans west and north of these two bays.

"In the selection of a building site the strait Eskimo chooses a bank near the shore, with a gentle slope toward the south. Here he excavates, with his whalebone shovel, a place ten or twelve feet square and about six feet deep. Level with the floor he digs a tunnel three and one-half or four feet square out to the hillside, and here he sets up a driftwood inclosure with an opening at

the top large enough to admit one person at a time. In all the long winter months, when the snow drifts keep the subterranean resident confined for weeks at a time, but little snow finds its way through this opening. Moreover, as the heat rises to the top little of it escapes through the tunnel.

"The room thus excavated is studded closely with driftwood, of which there is always an abundance; a rafter is placed at each corner, reaching to a square frame or skylight in the center. This is covered with the intestine of seals or walrus, instead of glass. The spaces between the rafters are filled out with brush, whalebone, split logs or odds and ends of boards found along the beach. This thatch is covered with sod or loose ground, and the home is complete—a home, warm and comfortable, and one that offers no obstruction to the almost continual north wind from January to the middle of May.

"As a rule no fireplace is found in these underground dwellings. But little cooking is done. The natives live on dry fish, stored up in summer, or on raw frozen tomcod caught through the ice by the women in the winter. This, with seal oil, blubber and seal meat, constitutes the entire diet. Knives, forks and spoons are unknown. The men find an excellent substitute in their first and second fingers, which they dip into the tray of seal oil and lick with gusto. The women use three fingers, and the children all four.

"For the young people of the family, or families—for they crowd into one hut as many as possibly can find sleeping room—a platform, six feet long, is constructed, the entire width of the room, midway between floor and ceiling. Here the boys and girls rest their limbs in months of slumber, the floor being reserved for the old folk. Upon entering the room the Eskimo carefully brushes

from his clothing every particle of snow. Then, taking off his artiga, he sits nude to the waist, chatting until bedtime. Bedtime is any hour when the elders of the household feel like going to bed. When that time arrives, all clothing is removed and the family retire to their deerskins. Extreme filth troubles the Eskimo not at all. Vermin he rather likes than dislikes, although there is a limit to all things. When his artiga becomes unbearable he hangs it outside the hut on a cold night and the trouble is remedied.

"The habits of these people vary considerably in different districts. Especially is this difference noticeable between the Alaskans living on the coast and those less fortunate confined to the islands. There is a distinct variation in appearance, habits, mode of building, construction of sleds and boats, manner of traveling, personal decoration and clothing. Whereas, on the mainland the Alaskans live in villages of 100 or 200 inhabitants, in separate one-room underground dwellings, on St. Lawrence island, for example, and elsewhere in the Bering sea, they live in large above-ground huts of an oval or round shape, the interior of which is divided by walrus hides into a number of sleeping apartments. In the center is left a large living room, used as well for storage. This room has a fireplace in the center, and the square frame in the roof is made removable. The fire is made sometime during the day, and when a desired temperature is obtained the still-burning pieces of wood are thrown outside through the square hole in the roof; the smoke is allowed to escape and the fireplace in the floor is covered over with boards. Then no fire is made until the next day.

"The growing importance of the Alaskan mines and the development of the country along the lines fixed

by its principal industries have justified the experiment begun in 1891 by Dr. Sheldon Jackson of introducing the Siberian reindeer and instructing the Eskimos in the care of them. For long journeys across a desert of snow dog trains will not answer. Not only is their progress slower than is that of the reindeer, but they cannot carry, in addition to their own burdens, enough food for a long stage across country. With reindeer it is different. After covering from fifty to ninety miles in a day—twice or thrice the distance to which a dog team is equal—the deer may be turned out at night to seek their own fodder under the snow. More than that, with such a reindeer herd as Siberia has, the natives of Alaska would have that resource of food and clothing of which they now are in so bitter need."

Father Barnum of the Catholic mission at the delta of the Yukon has spent five years in the far north—traveling, teaching and preaching, winter and summer. Speaking of the introduction of reindeer into Alaska, he made the statement that the Catholics are not considered in their distribution; that the animals all go to Protestant missions.

"Why is your church not put on an equal footing with other denominations?" he was asked.

"I know of no reason. All I know is that the Catholics are not getting any favors from the government."

"Do you think the experiment of introducing reindeer will succeed?"

"Yes, eventually; but there are obstacles, the most serious of which are the Eskimo dogs. The dogs and the reindeer can never live together, and now the dogs have the field. They will kill and eat the deer. The Innuit would not give up his dogs for anything else. We have been trying to introduce the St. Bernard and other

breeds of what we call 'white' dogs, but the same trouble comes in as with the reindeer—the Eskimo curs kill and devour them.

"They are strange animals, as we are used to regarding dogs, being more like wolves. They have no such thing as affection in their make-up, but, on the other hand, they are not particularly hostile. When a strange man comes into the camp they pay no attention to him whatever. They do not bite, neither can they bark, and there is a funny thing in that connection. When they are brought into association with 'white' dogs they try to learn it, and it is the most awkward and discordant attempt at barking that any one ever heard. But they are treacherous. They tolled poor Jack, my St. Bernard, away from the house, and then all jumped on him like a pack of wolves and ate him up, and they will serve the reindeer the same way."

Father Barnum remarked upon the prevalent idea that a reindeer is nearly as large as a horse.

"On the contrary," he said, "it is a vicious, malevolent little animal, hardly larger than an ordinary deer, that will sit up on its haunches and strike savagely at a man with its front feet. But there is no doubt about its usefulness and adaptability to the country and the requirements of the people."

CHAPTER XXVIII.

HISTORY OF ALASKA.

A CZAR'S dream of Russian aggrandizement led to the discovery of Alaska. Peter the Great had conceived the idea of pushing on past Asia to the American continent and founding a Russian empire in the new world. To this end he sent out an exploring expedition under the leadership of Veit Bering, a Danish captain in the Russian service. The expedition started in February, 1725, and though the czar's death occurred in the same month, the monarch's scheme was carried forward by Catherine, his widow, and Princess Elizabeth, his daughter.

The arduous work of exploring the Siberian coast and waters continued for sixteen years before the Alaskan coast was sighted. The second Kamchatkan expedition was six years in crossing Siberia. It was in the spring of 1741 that Bering and his lieutenant, Chirikof, put out into Bering sea, the waters of which Bering had discovered on his previous expedition. They had two small vessels. One was commanded by Bering, the other by Chirikof. The little craft became separated at sea, and never were reunited. Chirikof bore away to the east, and during the night of July 15, 1741, sighted land in latitude 55.21. It was afterward disclosed that this was thirty-six hours in advance of Bering's discovery of the mainland of America.

Chirikof sent a party ashore in one of his small boats

to explore the immediate country and secure fresh water. Soon after leaving the vessel, they passed around a rocky point and disappeared from sight. As they failed to return at the appointed time, another boat's crew was sent ashore. Soon a great smoke was seen arising from the shore, and two large canoes filled with threatening natives came out from the land. They refused to board the strange ship, and it dawned upon Chirikof that all the men he had sent ashore had been massacred. This reduced his crew to small numbers, and Chirikof decided to return to the Kamchatkan coast.

The return voyage was attended with frightful hardships and suffering. Scurvy attacked the men, many died, and the others were rendered helpless by sickness. After weeks of this suffering, the vessel reached the Kamchatkan coast, with only the pilot on deck. Chirikof was one of the first stricken with scurvy, but he recovered.

Bering's party suffered even greater hardships. After sighting the coast and making a landing, Bering gave orders to lift anchor and return to Kamchatka. The ship became lost in the maze of islands, and was wrecked upon a barren island. There the survivors passed the winter, many of them dying. Caves were dug in the sandy bank of a little stream, and a scanty and uncertain food supply was obtained by killing sea animals and resorting to the flesh of dead whales cast upon the beach. Bering died on this island December 8, 1741.

In the spring the handful of survivors constructed a boat from their wrecked vessel and succeeded in working their way back to the Siberian coast, where they were received with great rejoicing, having long been given up for dead.

Although the discoverer lost his life on the first ex-

pedition, his work was followed up by his countrymen, and in the pursuit of the fur trade numerous settlements were made by the Russians at various points on the coast. Of these sealing posts there were about forty, of which Archangel was the most important. The territory had been granted in 1799 by Emperor Paul VIII. to the Russian Fur company, and in 1839, when the charter was renewed, sealing had developed to such an extent that the annual exportations amounted to 25,000 skins, besides many sea otter and beaver skins, and about 18,000 sea horse teeth. In 1863 the expiration of the charter of the company found Russia extremely desirous of being relieved of the anxiety to which the protection of its subjects and the maintenance of a government in a far-away arctic region subjected it. It has been asserted by some that the negotiations instituted by the United States for the purchase of the peninsula contemplated rewarding Russia, under the guise of a nominal purchase, for its friendliness to the American union during the civil war. This view, however, is hardly tenable, in view of the lack of interest Russia had taken in its American possessions. The Russian-American Fur company for commercial reasons had been aggressive, but the Russian government had confined itself, after the granting of the charter of the company, to the protection of its Alaskan subjects and the maintenance of order among them.

Be the motives for the purchase what they may, in 1867 the entire Russian possessions in America were ceded to the United States. The purchase was negotiated by Secretary William H. Seward, who considered it the most important act of his career, though he declared that two generations would pass before the value of the acquisition could be appreciated. There can be no doubt that he was anxious to effect the purchase, but Russia

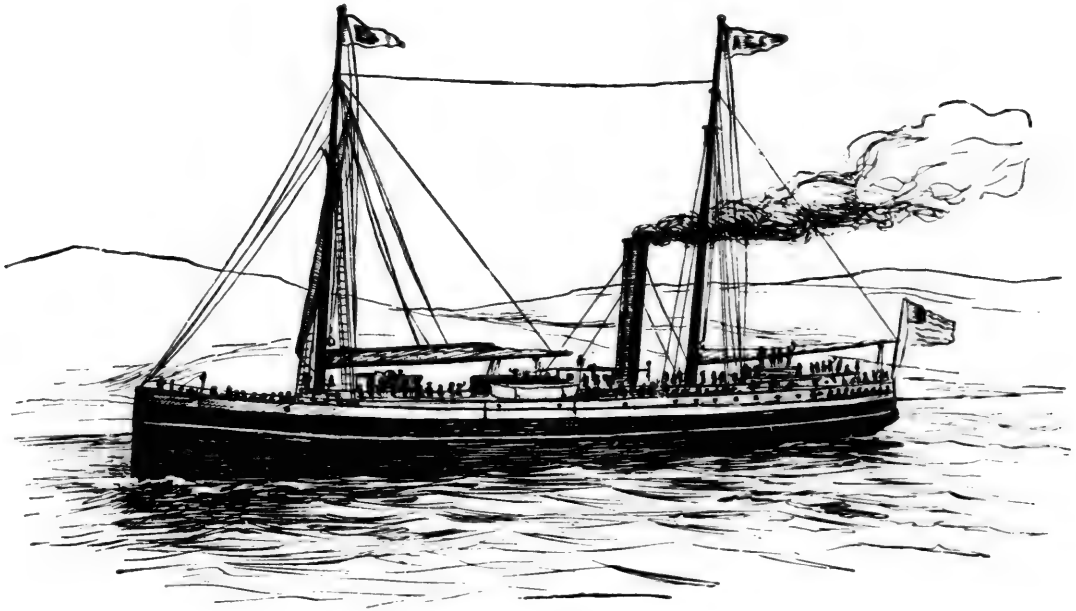
made the first advance. The state department negotiated a secret treaty, which the senate afterward ratified, providing for the transfer of Alaska to the United States in consideration of the payment of $7,200,000 in gold, at that time equivalent to more than $10,000,000 in greenback currency. Notwithstanding the fact that $10,000,000 was a most inconsiderable consideration for a transaction so big with possibilities, Secretary Blaine declares that "there is little doubt that a like offer from any other European government would have been rejected," it being a time when, "in the judgment of the people the last thing we needed was additional territory."

The state department's negotiation and the senate's ratification were not the conclusion of the business, for in order to carry out the transaction contemplated by the treaty an appropriation by congress became necessary. There were objectors in congress who opposed the consummation of the convention. Cadwalader C. Washburn declared that when the treaty for Alaska was negotiated "not a soul in the whole United States asked for it." He asserted that the treaty was negotiated secretly, without chance for a hearing and that the country ceded was absolutely without value. General Butler strongly re-enforced Mr. Washburn's argument, declaring that he would rather give Russia $7,200,000 for its friendship provided it would keep its peninsula of ice and the responsibilities attached thereto. General Schenck and Mr. Shellabarger also were in the opposition, but the side that had for its supporters General Banks and Thaddeus Stevens finally was victorious. There was much bitterness against Secretary Seward for having negotiated a "star chamber" treaty, but congress voted the required appropriation. Before this was done, however, President Andrew

Johnson had taken possession of the country in the name of the United States.

The name Alaska, formerly spelled Aliaska, is derived from a native word Al-ak-shak, signifying "great country," and the world is just awakening to the appropriateness of the designation. From north to south Alaska extends 900 miles from sea to sea; from Bering sea on the west to the British boundary line the distance is 700 miles. Alaska's area of 600,000 square miles is best appreciated by comparison with more familiar regions. The peninsula is twice as large as the state of Texas; three times as large as California; more than ten times as large as Illinois; about eleven times as large as New York state; about five hundred times as large as Rhode Island, and nine times the size of all the New England states taken together.

The first period in the development of Alaska is included between the years 1867 and 1890, and furnishes a striking analogy to the course that has been taken in the opening up of British North America. In the transfer of the peninsula to the United States the business men who composed the Alaska Commercial company saw the opportunity for a fortune, and before the possibilities of the United States purchase were known or even conceived, the wealth of Alaska and its islands had passed for a term of years into the control of this far-sighted corporation. There is no doubt that the purchase money, amounting to less than half a cent an acre, long since has been returned in profits on the seal fisheries, but it has been returned to the government's beneficiaries and not to the government. In the first five years money paid into the treasury on the lease of the Alaska Commercial company, paid 8 per cent upon the first cost. Indeed, the two small seal islands paid a goodly percentage on the



ALASKA STEAMER "EXCELSIOR."

purchase money for the entire province, and simply in rent to the government they more than repaid their cost, but despite these partial showings the fact remains that the government's bad bargain diverted the income from a rich property to the hands of a few, who were wise enough to secure the concession.

In 1890 the lands of the fur seal islands passed from the Alaska Commercial company into the control of the North American Commercial company. The new lessee went farther from the old established trading posts for traffic with the natives, making such endeavor to develop the country as never had entered into the designs of its predecessor. A monthly mail route, open seven months out of the twelve, was established between Sitka and Bering sea, and the postoffices that followed the mail route opened up communication between the interior and the United States.

Prior to the year 1884 the government of Alaska was essentially military, that is to say, federal customs officers were sustained in the territory to prevent the selling of liquor to Indians and white men. With only natives to govern there was little occasion for a government. However, as the white residents of the southeastern coast increased in number a more pretentious government became desirable, but the matter was agitated for several years without fruit. A convention was held at Juneau in 1881 and M. D. Ball was sent as a delegate to congress. Congress, however, would have none of Mr. Ball in any official capacity, and while the matter of Alaska's civil and economic condition had been brought to the attention of the American government and people, yet Alaska still was without representation of any sort in congress. In the next session of congress the matter was brought up, but no action was taken, and it was not until 1883

ALASKA STEAMER "EXCELSIOR."

that congress granted the province any semblance of civil government. The bill which became a law in that year was introduced by Senator Benjamin Harrison and entitled "The Organic Act of Alaska." This bill provided for the appointment of a governor, a marshal, a clerk, and district judge, a clerk of the court, and four United States commissioners, the last-named to have their residences in four of the principal cities of the territory and the other officials to have offices at Sitka, the temporary capital. All were to be appointed by the president. The first actual representation of the territory thus constituted in the political affairs of the United States was in 1888, when the Democrats of Alaska sent delegates to the democratic national convention and the credentials of these democrats were honored. The Republican national committee holding office between 1888 and 1892 allowed Alaska permanent representation the same as the other territories and the same recognition was accorded by the democratic convention of 1892.

In the spring of that year the efforts of representative men of Alaska had resulted in the enactment of a law which for the first time provided for the suitable transfer of land-titles in Alaska. By the terms of this act individuals or companies were permitted to purchase land at $2.50 an acre, and dwellers in towns were permitted to acquire valid title to their holdings. Up to the present time Alaska has no representative government, but is administered by the federal authorities directly, in the same manner as is the District of Columbia. Up to the late discovery of gold Alaska has lacked partisans to plead its cause in congress. Now, however, that the Yukon region is drawing from all quarters of the United States the hardiest and the bravest, it has much to hope from an early session of congress in the way of legisla-

tion to place it on a level with other unadmitted territories.

The following are the federal officials in Alaska:

Governor—John G. Brady, Sitka.

United States Judge—Charles S. Johnson, Sitka.

United States District Attorney—Burton E. Bennett, Sitka.

United States Marshal—James M. Shoup, Sitka.

Clerk of District Court and Ex-Officio Secretary of State—Albert D. Elliott, Sitka.

Treasury department officials:

Collector of Customs—Joseph W. Ivey, Sitka.

Agent Seal Islands—Joseph Murray. Assistant agents seal islands: John M. Morton, J. B. Crowley, and James Judge.

Special Agent Investigation Fur Seal Fisheries, Seal Islands—Professor D. S. Jordan.

Special Agent Salmon Fisheries—Howard M. Kutchin.

Assistant Agent Salmon Fisheries—James C. Boatner.

Interior department officials:

Register of Public Lands—John W. Dudley, Sitka.

Receiver of Public Money—Roswell Shelly, Sitka.

Surveyor General of Alaska—W. L. Dustin, Illinois.

Commissioners—At Sitka, Caldwell W. Tuttle; at Wrangel, Kenneth M. Jackson; at Unalaska, Lycurgus R. Woodward; at Juneau City, John Y. Ostrander; at Kadiak, Philip Gallagher; at Circle City, John E. Crane; at St. Michael, L. B. Shepherd; at Dyea, John U. Smith; at Unga, Charles H. Isham.

The opponents to the consummation of Secretary Seward's negotiation for the purchase of Alaska had a certain basis of truth for their slur upon Alaska as a peninsula of ice, for in the north, at St. Michael and Point Barrow,

wells have been dug through 60 feet of solid ice and the same is true along the Yukon. The summit of Mt. St. Elias, 18,000 feet above the level of the sea, is covered with perpetual snow. From the south side of this mountain eleven great glaciers are slowly traveling to the sea, and one of them, the Agassiz glacier, is twenty miles wide and fifty long, covering an area of not less than 1,000 square miles. In the interior the plains are covered with ice for eight months in the year. On the Aleutian islands, however, is luxuriant vegetation. There are no large trees, but the miniature prairies are covered with rich vegetable mold and a rich growth of grass and shrubbery. Scientists predict that from the Aleutian country will yet be drawn the best supplies of butter and cheese for the Pacific coast. Along the southern coast of the mainland the climate is balmy, and even where the winters are most rigorous and long-drawn-out the spring and the short summer are seasons of rapid growth of vegetation and of endurable temperature.

There are thirty or more volcanoes in Alaska, about eight of which are in active eruption. Shishaldin, a volcanic mountain, 9,000 feet high, is known to burn constantly. One hundred miles from Unimak island, where this volcano is situated, is Pavlof, another smoking mountain. Mt. Makushin, on Unalaska island, is about a mile in height, and also more or less active. There are other smoking volcanoes on Unimak, Akutan, and Atka islands. Besides its numerous volcanoes Alaska boasts the highest known mountain in North America. This peak, Mt. Wrangel, has an elevation of 19,000 feet, and there are others that crowd it closely. Besides Mt. St. Elias, with its altitude of more than three miles, is Mt. Fairweather, 5,500 feet high; Mt. Crillon, 15,000; Mt. Perouse, 14,300.

The mountains at Cape Prince of Wales, from which the continent of Asia may be seen, are barren and rugged. Toward the base they slope out gradually and end in a long stretch of sandy beach. The proximity of Siberia suggests to all who look across the strait and see another continent rising before them the desirability of a bridge to span the strip of water and join the hemispheres. Desirable it certainly would be, but altogether impracticable, it is said. The current is too swift, and the vast quantities of ice which fall into the Arctic ocean and, in the breaking-up season, bear down to the south, would demolish in short order any abutments that might be erected. It has been suggested that the strait might be tunneled or that vast quantities of the basaltic rock might be torn out of the cliffs on Cape Prince of Wales and used to form a highway between Asia and America.

To return to the subject of the climate, the coast country of Alaska derives great benefit from the Japan ocean current, which tempers the raw air and modifies the harsh winds that blow from the north. Throughout all the coast country the precipitation of rain and snow is very heavy and seasons of excessive rainfall are very likely to continue for weeks at a time. Nevertheless the Alaskan rains are not so cold as are the rains even in the temperate zone, and while the air is cool at all times it is not raw at any season. In the interior there is less rainfall than on the coast, and there summer heat rises to excessive temperature. The mercury has been known to rise as high as 120 degrees, but the extreme cold of winter quickly follows. Fifty and 60 degrees below zero is the usual minimum temperature, although 70 degrees is on record. It is the extreme humidity of the atmosphere and the heavy precipitation at all seasons that produces the remarkable verdure already mentioned. All garden

vegetables thrive in this climate, and many small fruits are indigenous to the soil. Up to the present, no stockman has made a success of raising either large or small cattle. The climate is trying to farm animals.

In his report James Sheakley, governor of Alaska, in 1896 transmitted to the interior department the following particulars regarding the seal catch, the mines, and the fisheries of Alaska, together with facts touching civil conditions in the territory:

"The summary of the seal catch in Bering sea for the season of 1896 shows that 7,965 male and 12,641 female seals were killed.

Season of 1895.

Eighteen American vessels caught..... 6,454
Thirty-six British vessels caught.....24,762
Fifty-four vessels caught.....31,216

Number of boarding operations, 171.

Season of 1896.

Twelve American vessels caught..... 2,907
Fifty-four British vessels caught.....17,805
Sixty-six vessels caught.....20,712

Number of boarding operations, 181.

Total number of miles steamed by the patrol fleet to date, 77,464.5.

Number of American vessels seized in Bering sea, 2.

Number of British vessels seized in Bering sea, 4.

"Of the sixty-six vessels engaged in pelagic sealing but twelve were American. The number of fur seals frequenting Bering sea is becoming steadily less every year, and all engaged in the industry of pelagic sealing are be-

ginning to realize that they have killed the goose that laid the golden egg. Thirty thousand male seals were taken by the lessees of the Pribilof islands this year of 1896. I see no reason why this or even a greater number should not be taken annually, as the number of males is largely in excess of the needs of the herd.

"Two million three hundred thousand dollars in gold bullion have been taken from the gold mines within the territory of Alaska during the year ending October 1, 1896. The greater part of this amount is the product of low grade ores, much of which yielded less than $4 per ton. The improved methods in mining and milling gold-bearing rock have so greatly reduced the expense that almost any grade of gold ores can be worked with a profit. One dollar twenty-five cents per ton is the average cost of mining and milling the quartz rock at the Alaska-Treadwell Gold Mining company's mines on Douglas Island, Alaska. Hunting or prospecting for new mines has been very active during the year last past, and a number of good mines have been located. Several of these new ledges are being developed rapidly, and on some stamp mills have been erected and are operating with satisfactory results. Confidence in Alaska as a gold-producing country increases as her resources are developed.

"A number of gold-bearing quartz ledges and placer deposits have been discovered in this district and several of them are being rapidly developed with good prospects. The 'Pande Basin placer mine' is situated between high mountains about eight miles from Sitka. About 150 acres of this placer are covered by the waters of a small lake. It is proposed to drain off the waters of this lake, which will enable the whole area to be mined.

"Six hundred and nineteen thousand three hundred

and seventy-nine cases of salmon were caught and packed in 1895. We could not ascertain the amount packed for 1896, but it will be in excess of last year. In addition to the twenty-three canneries in operation during 1895, six new canneries were added this summer, making in all twenty-nine canning establishments in Alaska. These canneries employ 2,000 white men, 1,600 Indians, and 2,000 Chinese. The Indians received $60,000 in cash for labor and fish during this season. A large amount was also disbursed in the territory for lumber and boxes. The supply of salmon seems to be inexhaustible. After twelve years' of fishing in these waters and taking 288,000,000 pounds, or 144,000 tons of salmon, there appears to be more fish this year than at any previous time. In July last at Karaluk 100,000 were caught at one haul of the seine. By an act of congress approved June 9, 1896, the secretary of the treasury was authorized to appoint an inspector of fisheries in Alaska and two assistants. These inspectors were appointed and immediately entered upon the duties of their office. They visited nearly all the canneries in the territory. Their reports will be read with interest.

"The cause of education throughout the territory has been well sustained by the bureau of education with an able corps of teachers. The Indian children have been more punctual in attendance and have made gratifying progress in acquiring a knowledge of the elementary branches of learning. The new school houses at Ketchikan, Douglas island, and Unalaska have been completed, and are now occupied for school purposes. A new school has also been established at Circle City, in the Yukon gold-mining region, and a qualified teacher sent out to take charge. The following table gives the location of each of the government schools, the number of

children enrolled in 1895-96, the average attendance, and the names of the teachers:

	Enrollment.	Average Attendance.	Teacher.
Sitka No. 1	40	27	Mrs. Gertrude Knapp.
Sitka No. 2	156	32	Miss Cassie Patton.
Juneau No. 1	70	39	S. A. Keller.
Juneau No. 2	50	25	Miss Elizabeth Saxman.
Douglas	57	35	L. A. Jones.
Fort Wrangel	82	37	Miss A. R Kelsey.
Haines	60	36	Rev. W. W. Warne.
Jackson	64	47	Miss C. Baker.
Saxman	31	16	J. W. Young and Henry Phillips.
Yakutat	58	29	Albert Johnson.
Hoonah	144	35	Mrs. M. E. Howell.
Kadiak	49	32	C. C. Solter.
Afognak	39	22	Mrs. C. M. Caldwell.
Unga	44	29	O. K. McKinney.
Unalaska	39	36	Miss E. Mellon.

MISSION SCHOOLS FOR 1894-95.

Cape Prince of Wales	142	137	Thomas Hanna.
St. Lawrence Island	52	40	V. C. Gambell.
Point Clarence	56	21	Rev. P. L. Brevig.
Golovin Bay	49	25	August Anderson.
Unalaklik	64	30	David Johnson.
Kosoreffsky (no report)			Rev. P. Tosi.
Nunivak (no report)			Rev. F. Barnum.
Ougavig (no report)			Rev. E. L. Weber.
Bethel	32	26	Miss Mary Mack.
Carmel	30	25	Miss Emma Huber.

"The Greco-Russian church sustains schools at the following places: Fort Kenia, Nunlchik, Tooyounok, Alexandrofsk, with a combined attendance of sixty scholars. It also maintains orphanages at Unalaska, Kadiak, and Sitka, in which there are now forty children. The largest Russian school in the territory is located at Nutchik, and is taught by Mr. Andrew P. Kashivaroff, who had forty-two scholars during the past year. The Greek mission and orphanage at Sitka is doing excellent work with

Rev. Anatole as minister and A. Protopopoff as teacher. English is being taught in all these schools.

"The Sitka Industrial Training School, founded by the Rev. Sheldon Jackson, D. D., in 1880, is now a permanent institution, supported by the Presbyterian board of home missions. To the Rev. A. E. Austin, its first teacher and present chaplain, is due much credit for the success of the school. The Rev. U. P. Shull is now the efficient superintendent, and 160 children of both sexes are taught, boarded, and clothed at this mission. The Presbyterian board of home missions also supports schools and missions at Chilkat, Juneau, Howkan and Fort Wrangel. The marked improvement in the condition of the Indians since the establishment of the schools and missions is reason sufficient for their existence and continuance.

"The missionary work of the Protestant Episcopal church in Alaska is now in charge of the Right Rev. Peter Trimble Rowe, D. D., who was consecrated bishop of Alaska in St. George's church, New York, November 30, 1895. Since entering his diocese, March 23 of this year, he has made and completed a trip of 5,000 miles, establishing several missions and visiting others.

"A mission has been established at Juneau, where a rectory and church have been built and placed under the care of the Rev. H. Beer. At Circle City property has been purchased and arrangements made for missionary work, which will comprise a hospital, native school and church. Mr. Bowen has, for the present, been placed in charge.

"Fort Yukon also has been occupied, a small log house erected for religious uses, and an educated native, Nen Laloo, appointed to conduct lay services. St. James mission, Fort Adams, is in charge of the Rev. J. L. Prevost.

Here Mr. Prevost has a school for the Indian children. This school has a registered attendance of seventy-five day scholars and sixteen boarders. In addition to religious evangelization throughout an area of 100,000 square miles and among an Indian population of 1,563, scattered in little bands within this area, Mr. Prevost has within the year given medical treatment to 347 cases, and furnished to the same 2,238 meals. Material is, in part, on hand for the erection of a hospital, hospice, and chapel.

"Christ Church mission, Anvik, is under the care of the Rev. J. N. Chapman. The mission operates a saw-mill, where the natives are employed and have been largely taught regular habits of industry—greatly to their benefit. A boarding and day school is conducted here and is in charge of Miss Sabine as teacher. The school is well attended, prosperous, and the children manifest great improvement. It is hoped to enlarge this school, making it a central training school for Indian children from all parts of the great Yukon country. At Point Hope Dr. John B. Driggs has a school of 80 Eskimo children. He is a graduate in medicine and his services are invaluable among these people along the northwest coast of Alaska.

"A school house should be built and a school established at Sunrise City, Cooks Inlet, for the education of white children. A school house should also be erected at Wood Island. Out here on the verge of civilization, where neither the moral nor civil law has its accustomed restraining power, the school and the church, the teacher and the missionary, are the great conservators of peace, morality, and good government and should be sustained by the government and the people. I would earnestly recommend that the appropriation for school purposes in Alaska be increased to $40,000.

"The importation, manufacture, and sale of intoxicat-

ing liquors in the District of Alaska, except for medical, mechanical and scientific purposes, is prohibited by law. In theory, Alaska is a prohibition country. In practice it is not. Notwithstanding the unceasing efforts of all the civil officials, liquor can be obtained in any white settlement of any consequence in the district. And when it is remembered that not even a single business man here is in favor of the enforcement of this law, this condition of affairs is easily understood. The extensive coast line of Alaska, with its innumerable bays, together with the sentiment of its residents, makes smuggling easy, and load after load of liquor is brought from British Columbia to the different Alaskan towns.

"The collector of customs and his deputies and assistants do all they can to prevent this illegal traffic, as is evidenced by the amount of liquor which has been seized during the past year. But his force is wholly inadequate to cover the ground and he is practically without transportation facilities. Once landed, the liquor is hidden in some secure place, to be taken therefrom and disposed of to the retailer as necessity requires. And the retailer also has his private hiding place, and seldom has more than a bottle or so of liquor in his saloon at one time, so if he is raided his loss amounts to practically nothing.

"For many years the grand juries have refused to indict saloon-keepers or even to allow evidence to be presented of violations of the prohibitory law. This, however, only applied to sales to white men. The grand juries of Alaska never have failed to indict nor petit juries to convict anyone proved guilty of selling whisky to Indians or of selling intoxicating liquor without first having paid the United States internal revenue tax.

"The people of this district take the stand that congress in passing this prohibitory law had in mind the

Indians, understood their condition, and knew that it was necessary for their well-being to keep liquor from them; that when it was passed the white population in Alaska was small and not taken into consideration: that since its passage the white population has largely increased and new conditions have arisen, and that in vigorously enforcing the liquor law in regard to the Indians and practically ignoring it in regard to the whites they are carrying out the spirit of the law and fulfilling the intent of its makers. The civil officials, however, must take the law as they find it, and have strenuously endeavored to enforce it. Their efforts have been practically fruitless, as is shown in previous reports.

"At the last November term of our district court, the grand jury indicted all the saloonkeepers in the district. They thought it better to plead guilty than to employ attorneys and fight the indictments in court. They pleaded guilty and each of them was fined $50. At the last March term of the district court, the grand jury again brought in indictments against all the saloonkeepers in the district. Thereupon one of their number entered a plea of guilty and the court imposed a fine of $500 upon him. The rest immediately combined, employed many of the attorneys in the district, and prepared to fight the indictments. Demurrers were interposed, but after argument they were overruled by the court and the indictments held good. United States District Attorney Bennett moved one of his best cases for trial and presented his evidence, and the case was submitted to the jury, which promptly returned a verdict of not guilty. The district attorney moved another case and again presented the evidence. The defense as before offered no evidence at all. This time the jury failed to agree. In each of the cases several days were consumed in securing a jury, and it was with difficulty that in the second case one was secured at all.

"The district attorney, feeling that it would be impossible to secure another jury at this term of court, to say nothing about securing a conviction at this time, or the expense that would be incurred in proceeding further, and evidently thinking it best to rest on a disagreement rather than absolute acquittals, asked the court to continue the remaining cases over to the coming fall term of court, and that each defendant be placed under $500 bonds. This was accordingly done. Indictments are now pending against forty-five saloonkeepers, located at Juneau City, Douglas Island, Sitka, and Fort Wrangel. That all of these defendants have sold liquor in violation of the existing prohibitory law is a matter of common notoriety. That one of them will be convicted by a trial jury is, I am sorry to say, not believed for a moment by any resident of Alaska. The present district attorney has shown commendable zeal in his endeavors to enforce the law, believing that all laws should be enforced until repealed.

"It must not be inferred from the way juries stand in regard to this class of cases that Alaska is in any sense of the word a lawless community. The courts here stand as high and are as able as in part of the United States, and crime is as surely punished here as elsewhere. Our juries are not composed of saloonkeepers, but of miners and business men. The miner can always be relied upon to mete out equal and exact justice to all; hard working, large hearted, and just, it is a libel of the basest kind to call him lawless or the community in which he lives a lawless one, and I am glad to bear witness that it is only malicious and irresponsible persons who do so.

"As the matter now stands, as I said in my last annual report, this prohibitory liquor law is most demoralizing in its effects. It begets a disregard for all law, fosters

AN ALASKA GLACIER.

smuggling, and causes a large class of citizens, who ought to aid the civil authorities, to be against them, and crimes that ought to be punished and would be, were it not for this law, go unpunished. Being against the government in this matter they are almost unknowingly against it in others; and a desire to get even often outweighs all other considerations. Meanwhile the sale of liquor goes on openly, and none of the people in the district seem to be opposed to it.

"Prohibition, unless supported by a large body of the citizens of a community, means here, as it means everywhere else, "free whisky." Laws, to be enforced must be just and reasonable, and must have the support of the people, and even though, as in this district of Alaska, they have no say in their making, in the end they have all to say, when they, as jurors in the jury box, are called upon to pass upon its violators. The present law should be repealed and in its place a high license law, with proper safe-guards, be enacted. The good effects would be immediately apparent. The saloons would decrease, smuggling would cease, sales of liquor to Indians would be lessened (for every saloon and liquor man would be with the government to suppress it), vile compounds and death-dealing mixtures would necessarily disappear, and the general government would be benefited by collecting its proper revenue, which is now lost.

"The Indian police have proved to be an efficient auxiliary in the preservation of order and the execution of the law. They are particularly valuable in reporting crime to the civil authorities as well as in compelling the attendance of Indian children at the government schools which are provided for them. They are also energetic in preventing the manufacture of hoochinoo, or native

whisky. There are but 22 Indian policemen in the territory. A greater number is necessary.

"The importation of domesticated reindeer from Siberia into Western Alaska appears to be successful. The herds already in the territory are in a flourishing condition and a large number are expected to be added this year. This will be a valuable source of food and clothing for the natives of that part of the country.

"The large influx of miners into the Yukon district furnishes an additional reason why the introduction of reindeer should be vigorously pushed. In that subarctic region reindeer transportation is necessary for supplying the miners with provisions."

CHAPTER XXIX.

QUEER SCHEMES AND ODD PROJECTS.

FREAKS OF all kinds and descriptions, schemes beyond number and "paper" enterprises which will never get beyond the type-written stage, have grown out of the Klondike excitement. There, too, are many legitimate enterprises, mining, trading and developing, which have been backed by men of experience and capital. All are based upon the supposition that in Alaska and the upper Yukon country are numerous opportunities for acquiring wealth. Thousands of men have been tossing on sleepless beds since the "Enterprise" brought the first returning Klondikers into San Francisco with their "grips" of gold dust and nuggets, trying to devise some scheme which will bring into their pockets at least driblets from the overflowing fountain of wealth which seems to run in spite of the congealing temperature under the Arctic circle.

It is announced that a Pittsburg man is going to establish a matrimonial agency at Klondike. He says: "Thousands of poor but thoroughly respectable girls, even in this state, are looking for honest employment, and would go to Alaska to get it if they were assured they would be properly cared for. In the towns and villages of New England the number of women is so far in excess of the men and employment is so hard to get that thousands would be willing to go to Alaska under proper conditions. I propose to secure places in advance for companies of,

say, 100 girls, and have their employers advance money for their transportation from the states and recompense me for my trouble besides.

"No girls will be accepted except such as can bring in the highest recommendations as to character and respectability. Arriving at the gold district, each one will be assigned to her place, but all will be located within a short distance of each other, so that they may have association and be able to counsel each other. Under this influence the camp would take on a homelike appearance, and the miners would not feel that sense of isolation which sends so many to their graves. They would be served with well-cooked food and the general health of the camp would be vastly improved."

While this Pittsburg man is planning to bring joy to the hearts of the bachelor fortune-seekers in the upper Yukon district, another philanthropist is laying plans to bring much more joy to every man in the gold diggings. One of the greatest pests of that country is the mosquito, which from all reports is anywhere from one to five inches long, and which is the most industrious, insistent, and malicious insect in the world. The "gallinippers" of New Jersey are mere gnats compared to those blood-suckers of the upper Yukon.

The Klondike mosquitoes travel in clouds, and when they light upon a man he has nothing to do but drop his work, throw up his hands, and run from it. It is given as a cold, sober fact that so malignant are these pestiferous insects, and so utterly defenseless are the miners whom they attack, that great, strong men drop to the ground and sob in an agony of helplessness. But there is a man who has decided to exterminate that pest of pests, the Alaskan mosquito. He will go to the Klondike and begin operations there next spring.

This benefactor's name is Dr. Armand Ravol, and he is the city bacteriologist of St. Louis.

He read all sorts of books upon the subject of fly extermination, and found that the Missouri state board of agriculture had murdered cinch bugs by the wholesale by inoculating a handful with a deadly germ which was communicated to the others and so had its desired effect.

So the doctor proposes to do the very same thing to the Klondike mosquitoes and will start for the north early in the spring, loaded to the brim with germs warranted to kill the most blood-thirsty mosquito that ever stung a helpless man.

The X-ray man is determined that his favorite shall not be distanced by any gold craze, no matter if it is active under the Arctic circle. He says that no miner or prospector, tenderfoot or seasoned, can get along in the Klondike region without an X-ray apparatus. He declares that a Crooke's tube, a spark coil, and all the other parts of an X-ray apparatus are as essential to the prospector's and miner's outfit as is his pan and corncob pipe.

The one thing that the X-ray man seems to be shy on is the electric generator which will stir up the cathodic ray so that it will penetrate through some twenty-five feet of muck and gravel and disclose to the enraptured eyes of the gold-seeker large chunks of yellow metal and great big nuggets, sticking all over his claim like raisins in a fruit cake. The X-ray man does not seem to care whether the radiographs are produced through the agency of an electrical current or otherwise; he seems to take it for granted that a miner can lug around enough primary cells or storage batteries, or a small steam plant with a dynamo sufficient to give him enough voltage to

shoot his radiant nugget-seekers through several tons of earth.

However, Nikalo Tesla is quoted at length as saying that some of the X-rays are without limit as to length and radiography, and he adds that the X-rays could be made valuable in searching "small beds of sand and gravel that had been thrown up by a shovel for washing."

It is the opinion, however, of a practical man who claims to be one grade above a tenderfoot, that even a lazy prospector could wash that gravel and dirt and find the gold if it were in there long before the X-ray machine was put in motion. If any miner or prospector wants to take an X-ray outfit along with him to help in his search for nuggets and great slabs of gold he may be interested in knowing that on a radiograph, which the shadowgraph or photograph produced by an X-ray, gold in quartz will show up like black flies in a sugar bowl. Following is the way to use the X-rays, according to a so-called eminent authority on this new school of mining in New York city:

"Two vertical holes, separated only by a very thin wall, could be sunk where it is suspected there are rich deposits of gold. Not only could the dirt and stone, etc., from these holes be examined, but the thin wall between them, one miner manipulating the X-ray apparatus and the other the screen. The accidental element from such mining would be largely eliminated. Then a row of shallow or deep holes could follow, and the walls and dirt in a large compass of ground could be gone over.

"There are four kinds of gold mining. The first is the work of the man who comes along with his pan, gathering up the sand and gravel and washing it out in the stream. It is, as has already been seen, working and washing unprofitable dirt that costs him so much.

"The next process is called cradle mining. Here, too, the miner needs to see what sort of dirt and gravel he should wash. The X-rays could be made more valuable in this process than in the first, for it is washing on a much larger scale. The X-rays, as we know them now, can be made of no great help in hydraulic and quartz mining. It would require too much labor to prepare the great heap of dirt and quartz, often containing a very small per cent of gold per ton, for search with the rays."

A fairly good X-ray apparatus costs about $100 in New York. The tubes cost from $5 to $15.

The Alaska carrier pigeon mail service is something that comes from Milwaukee. There the gentlemen who have been carrying on long-distance races by proxy, the proxies being carrier pigeons, have decided that all that is necessary to establish direct communication between the Klondike and the outside world is to send several coops of carrier pigeons up there and then turn them loose as occasion demands. The men who are at the head of this air-line postal service propose to establish pigeon stations at Dawson City, Juneau and Victoria.

They claim that a carrier pigeon can make the trip between Dawson City and Juneau, which is about 650 miles, in about 24 hours. Birds whose home would be Victoria would reach that place in about 30 hours. They say that one pigeon could be tossed up in the air at Dawson City every day. He would carry with him letters and messages reduced by photography to a size about the area of a needle-point.

On arrival at Juneau or Victoria these minute messages would be enlarged, enclosed in envelopes, and sent all over the United States. As it would take anywhere from 30 to 60 days to get the pigeons back again,

the atmospheric mail carrier would have a good, long rest after his flight.

Then there is the balloon man. He has sprung up all over the country, and with him are flying-machine men, both of whom are confident, according to their assertions, of taking a flying jump off some mountain peak in Washington or Montana and in a few hours landing softly and neatly in the midst of the startled gold-diggers in the Klondike. This is the only real airline to the gold diggings that has been projected. It is not yet opened, but a New York man, who calls himself Don Carlos Stevens, has informed the world at large that he has under construction a balloon that is destined to transport passengers and freight from Takou pass to the Klondike regions.

Mr. Stevens is authority for the statement that a couple of women are engaged in sewing the "gores" together, and then it will only remain to take the balloon somewhere out of the city of Greater New York and "coal" it. Other balloon men say that what Mr. Stevens meant to say, or what the telegraph instrument should have made him say, was "coat" instead of coal. This balloon, according to Mr. Stevens, will be large enough to carry 8 or 10 passengers and 6 or 7 tons of freight.

The bicycle man is not going to permit the balloon man to get ahead of him on any proposition. So that old stand-by, "a syndicate of wealthy New Yorkers," proposes to establish trading posts and stations along the route from somewhere to the Klondike. This route is to be a bicycle path, and the bicycle, of course, is one of the specially designed kind, made only for this particular purpose. A picture of the bicycle indicates that it has a kind of an out-rigger attachment at the end of which is another bicycle wheel, but whether that wheel is in-

tended to hold up the bicycle on a mountain side or to get over an air-hole on an ice-patch is not disclosed.

The bicycle syndicate also announces that it will "purchase all promising claims on the market," and will have nothing whatever to do with the "common methods of transportation, such as railroads, boats, pack horses, dog-sleds and Indians."

Another syndicate of wealthy New Yorkers believes that the little reindeer is the proper caper as a means of transportation to the gold diggings. This "syndicate" proposes to establish a reindeer post route, with relay stations and trained reindeer drivers, who will be able to get a 2:40 gait out of the creatures, no matter what the way and weather may be.

P. B. Weare, president of the North American Transportation and Trading company, probably has listened to more schemes produced by adventurers and cranks who want to get something out of the Klondike without going there, than any other man in the country. His office in the Old Colony building, Chicago, has been a gathering spot for men and women who are willing to sell brain product for Klondike nuggets.

One woman, who claimed to be a clairvoyant, took President Weare into a corner of the room and whispered in his ear that she could unerringly point out the hiding places of gold nuggets, no matter how far beneath the surface they might be. All she wanted was $2,000 to be used in organizing a company to locate placer claims by occult power. When President Weare suggested that she might use her powers of clairvoyance in locating a "backer" she left.

She had scarcely closed the door behind her when a man who is recognized in Chicago as a very amateurish detective of the "penny-dreadful" style, engaged Presi-

dent Weare's attention. All he wanted was a few thousand dollars to take himself and three or four brother "detectives" to the Klondike country and there arrest a hundred or more notorious criminals for whom big rewards have been offered. He was positive, he said, that every one of those men who has a reward over his head is in the Klondike country at this minute waiting to be arrested.

Other queer things brought out by the Klondike excitement were the barbers' syndicate, in which a number of barbers proposed to shave miners by the wholesale; a settlement company, which proposes to develop the farming possibilities of the gold region; a "frost cure" company, which wants to take a sure remedy for treating frost-bitten spots to the Klondikers; ear-muff traders; ice bicycle makers; bicycle skates, and all sorts of patent food preparations, guaranteed to last forever and to contain enough nutriment in small packages to keep a hungry miner going all the time.

A number of progressive Chicago gamblers, imbued with the idea of gaining fabulous riches at the expense of the unsophisticated tenderfeet of the Klondike gold fields, have packed up their roulette wheels, faro layouts and other sure-thing games incidental to the paraphernalia of the sporting fraternity and departed for the land of the frozen north. Stories of untold riches exceeding in magnitude the time worn gold-brick game furnished food for thought to the manipulators of the elusive pea and chuckaluck, and in the future they will ply their vocation on the icy peaks adjacent to the city of Dawson.

The men interested in the new venture, becoming fearful of Chief Kipley's reform measures in Chicago, decided at a meeting held in a down-town saloon to cast off their crash suits and start with all possible haste to the place

FORT CUDAHY.

where gold is said to be had for the asking. The question of a "bank roll" did not prove an obstacle in the way of the proposed trip, as each member has been conducting a "quiet" game in Chicago for the last two months.

Unlike former expeditions leaving this city and elsewhere for the Klondike, this select crowd will not burden itself with picks and shovels, but will take in place a pair of well-balanced scales with which to weigh the "dust" as it is wagered by the horny hands of the miners of the Yukon. At Dyea the gamblers will purchase several dogs and sledges for the purpose of conveying a large quantity of dressed lumber which they will use in building their house at Dawson City. Some of the members of the combination will make their headquarters at Seattle, where they will act as "steerers" for their friends in the interior.

They decided to depart for the Klondike with the characteristic rapidity of the sure-thing gambler, and three hours later the entire party boarded the 6:30 train on the Chicago, Burlington & Quincy railroad bound for Seattle. The only preparation made by the gamblers for the long and hard trip was the purchasing of several suits of heavy clothing.

But there are many enterprises which have been advanced by men who have something that is really worth considering. For instance, there is the company that intends to provide ready-made houses for the Klondike miners. The houses will be constructed in sections, so that they may be carried easily in boats up the Yukon or packed on sleds and carried through the rough country in baggage trains. A New York firm which makes a specialty of such houses has received orders for as many as can be sent there.

"The demand for houses in the Klondike is going to create a big boom in our trade," said a representative of the firm.

"It will be necessary for us to get right to work and make as many houses as possible. A number will be sent overland as soon as arrangements are made, and late in the fall we will load a vessel and send it by way of Cape Horn around to Seattle, where it will arrive in time for the spring immigration. Other vessels will doubtless follow, so that we shall have as much work as we can turn out to supply the gold hunters with shelter.

"My advice to carpenters and house builders out of employment would be to go to the gold regions with a plentiful stock of tools, and if they don't strike gold in the ground they will find remunerative work at their trades. It's rather late in the season now to start from eastern points, but the first men on the ground in the spring will make the money. I don't know much about the timber in that part of the world, but I presume there is some fit for building purposes. If there is not, lumber will be shipped there from Oregon and Alaskan ports. At any rate, carpenters need not lack employment. The rush to the Klondike in the spring will be unprecedented and cities must be built in the wilderness."

One of the largest schemes announced relates to a plan for dredging gold-bearing sand from the beds of streams. The scheme was born in Seattle, and a company has been formed to carry out the plans of the project.

The intention of the company is to build one of the great earth and mud-eating machines that are converting the tide lands of the upper bay end into the blocks of redeemed land that have marked one of the undertakings that will provide Seattle with manufacturing sites,

and send it to the mouth of the Yukon river, where it will be put together. One of the differences that will make the proposed dredger unique will be its power for self-propulsion and its extremely light draught. The power will be supplied to a stern-wheel, the same as to the light-draught river steamers.

After the completion of the building of the dredger at the mouth of the Yukon, she will start on her tour of investigation up the river, putting her long black beak into the sand and gravel of the bottom and doing some prospecting on her own account. When a rich streak is found she will churn away with her centrifugal pumps and toss the gravel and nuggets as well as dust and mud up by the bushel. When it is remembered that those who have come down say that a day's work is 2,000 pounds per man, the largeness of the enterprise appears when these amounts are multiplied 400 or 500 times, as is possible with the Bowers machine.

The promoters argue that the gold deposits of the rivers and creeks are the results of the washing down by high waters and the carrying down of ice floes. Upon this assumption the argument is made that in the deeper channels the gold has sunk lower, and as the dredgers will work down to bedrock the belief is that the result of pumping from the bottom will be proportionately richer. It has been demonstrated that the form of dredger to be used can deliver at the end of the conveyor pipes 70 and even a higher percentage of solid matter, and at Mare island, where work was at one time being done for the government, the centrifugal pumps brought up cannon balls, old tools and anchor chains. At Portland the dredger brought up loose mercury that was lost from a broken case. If it will do this the specific gravity of gold offers no impediment to the action of the pumps in

bringing it to the surface and delivering it at the dump.

There will be no encroachment upon the claims of others, say the promoters, as the bottom of the rivers is believed to be the place where the gold will be found. The contract for building the dredger will be let this fall, and its construction carried on under pressure.

CHAPTER XXX.

CANADA'S YUKON POLICY.

NOTWITHSTANDING the hard words said by Americans because of the imposition of a tariff tax, and the decision to collect fees for locating claims on the Klondike, the Canadian government is going forward on the line of policy which was laid down soon after the first reports from the Klondike were confirmed. The interior department of Canada published a statement, warning Canadians not to try to get into the Klondike this fall, but to wait until the spring of 1898. This has had the effect of checking the first flow of gold-seekers from the eastern provinces. Meanwhile the Dominion cabinet held many meetings and decided on certain lines of Yukon policy.

Regulations governing places of mining were promulgated by the department of the interior several months ago, before there was the absolute knowledge of the enormous richness of the mines in the Klondike, and these will be amended in some particulars. Steps will be immediately taken for the maintenance of law and order in the mining country. In addition to the twenty mounted police there at present, the government will at once send up eighty more.

The officers of each detachment of police will be appointed stipendiary magistrates, so that means will be furnished for the administration of law and order promptly and satisfactorily. A strong customs and police post will

be established a short distance north of the 60th degree of latitude, just above the northern boundary of British Columbia, and beyond the head of the Lynn canal, where the Chilkoot pass and the White pass converge. This post will command the southern entrance to the whole of that territory. A strong detachment of police will be stationed there, and the necessary barrack accommodations will be erected. Further on small police posts will be established, about fifty miles apart, up to Fort Selkirk.

If it is possible to construct a telegraph line from the head of the Lynn canal over the mountains to the first post just north of the British Columbia boundary, it would overcome the great present drawback of lack of means of winter communication with the Klondike. It is accordingly the intention of the Canadian government to ascertain the probable cost of the construction of such a line, and, if the project is found to be feasible, to put it into execution. The government proposes also at once to get the approximate cost of a wagon road and of a narrow gauge railroad over the territory between the coast and the post beyond the mountains. The provisions of the "Real property" act of the Northwest territories will be extended to the Yukon country by an order in council, a register will be appointed, and a land title office will be established.

Meanwhile, everybody is discussing possible new and shorter routes to the gold fields. A company has been organized in Toronto which proposes to build a line of railway north from Edmonton, on the line of the Canadian Pacific railway, and by alternate stretches of lake and rail to reach the Klondike entirely through Canadian territory. The estimate of the probable cost of the project is given as some $20,000,000, and it is safe to say that it will never get beyond the discussion stage. Another route

which is being mooted, and which seems to be more practicable, is from the headwaters of the Ottawa river to Hudson bay, and thence by the Mackenzie river to the Arctic ocean. The Mackenzie river is known to be quite navigable for the greater part of its course; the unknown factor is the portage from the mouth of the Mackenzie to the Yukon. So far, however, the route by way of the White pass, and thence down the Yukon river by boat, seems likely to afford the easiest and quickest means of travel.

The Canadian side of the Klondike question is cleverly shown by one of the Dominion officials. He said:

"There are not more Canadians rushing off to Klondike to spend the winter than there are of other nations, and neither the press, the government, nor the man on the street seems inclined to exaggerate the value of the new possession. Every one believes or hopes that the best is yet to come; but he does not indulge in extravaganzas about the resources of the country. Indeed, he hardly says as much in favor of it as he might. He is content that it has gold, and is willing to let the climate, the lumber, and the agricultural possibilities of the region g[illegible]

"Whether the country is paved with gold, as many appear to believe, the future will show; but it is undoubted[ly] not the treeless, frozen waste that it is called. The most accurate information that we have of the country, save as to its mines, is derived from a report to the director of the Canadian geological survey made by Mr. Dawson, son of Sir William Dawson, of a trip of exploration made in 1887. Since then various reports have been made, but none by trained scientists so qualified to come to a true finding of the possibilities of the country as those who made up Mr. Dawson's party. They spent the summer only in the region, and we have therefore no systematic

readings of temperature for the cold season; but they were able, from the flora and the advance of vegetation when they reached the district, to draw fairly accurate inferences. The country is not one flowing with milk and honey; but it is not the region which the exaggerations natural in a miner who has 'struck it rich' have painted it."

Of the climate Mr. Dawson reports: "In its southern portion (in which the Klondike region lies), situated between the sixtieth and sixty-fifth degrees of latitude, is comprised a region of probably not less than 30,000 square miles suitable for eventual agricultural occupation, and presenting none of the characters of a sub-arctic region which have, in advance of its exploration, been attributed to it. The winter climate of the whole of this great region is known to be a severe one, but it must be remembered that the climatic conditions on the eastern and western sides of the continent are by no means comparable, and that the isothermal lines, as already approximately drawn upon the maps, represent in a generalized form the aggregate of the influences which, working together, produce at the site of old Fort Selkirk, on the 63d parallel of latitude in the Upper Yukon basin, an attractive landscape decked with well-grown forests and with intervening slopes of smiling meadow, while in the same latitude in Hudson strait we find even at midsummer merely a barren waste of rocks and ice.

"The highest summer temperature he records is 84 degrees; and he quotes the observations at the old Hudson Bay company Fort Yukon, which is two degrees further north and well within the Arctic circle. The observations give a mean summer temperature of 56.7 degrees, a mean winter temperature of —23.8 degrees, and a mean annual temperature of 16.8. That is cold enough, but

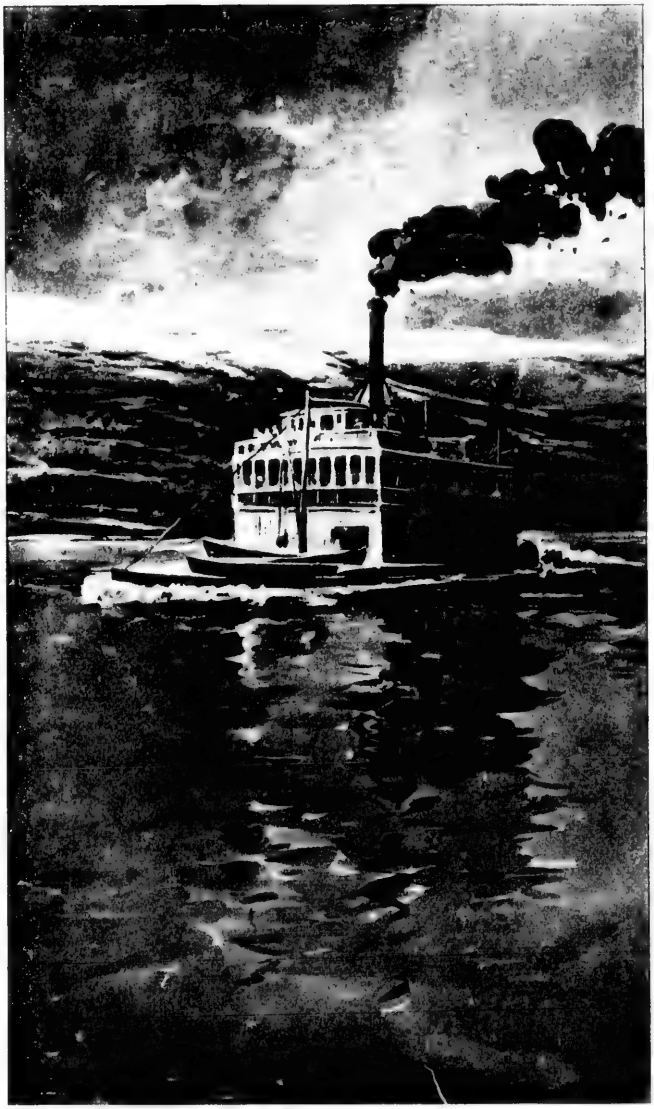
fuel is plentiful, and an abundance of white spruce, two feet in diameter and admirably adapted for construction purposes, can be obtained anywhere in the Upper Yukon districts. There are, he notes, no areas of tundra, or frozen morass, such as are stated to be characteristic of the lower Yukon.

"The great danger during the coming winter will be from starvation; but that is not altogether the fault of the country. It is still customary in rural parts to take your basket along when you go to a surprise party; and it is absolutely necessary to import food when thousands of men make a surprise party in a hitherto unsettled country. Not even the most bountiful region in the world, if it has never been settled, could provide for four thousand or five thousand newcomers. The country, according to Mr. Dawson, could easily feed a large population. Game is abundant; the caribou and the moose are plentiful, and near 20,000 skins are exported annually from the country. The rivers teem with fish, and 'Klondike,' we are told, means 'Salmon' river. 'The lakes and rivers generally throughout the country are well-supplied with fish, and a small party on any of the larger lakes would run little risk of starvation during the winter if provided with a couple of good gill nets and able to devote themselves to laying in a stock of fish in the late autumn,' says the report. The trouble will be that no one, when gold is in sight, will trouble either to hunt or to fish until the winter is far spent and starvation is staring the mining community in the face.

"After the first winter there will be no danger of starvation, and prices, taking all things into consideration, will not be very high. The country will continue to import its food, but provisions could easily be produced on the spot. Mr. Dawson writes of the agricultural possibilities

of the region in a way that would surprise many persons. He compares it with the district of Volovgda in northern European Russia, in the same latitude, which supports a population of a million and a half, although it has no minerals. 'Taking into consideration all the facts I have been able to gather,' he says, 'as well as those to be derived from an examination of the natural flora of the country and the observed advance of vegetation, I feel no hesitation in stating my belief that such hardy crops as barley, rye, turnips, and flax can be successfully cultivated. Taken in conjunction with the physical features of the region, this means that there exists an area of about 60,000 square miles of which a large proportion may—and doubtless in the future will—be utilized for the cultivation of such crops, and in which cattle and horses might be maintained in sufficient numbers for local purposes, without undue labor, as excellent summer grazing is to be found along the river valleys, and natural hay meadows are frequent. I do not maintain that the country is suitable for immediate occupation by a large self-supporting agricultural community, but hold that agriculture may before many years be successfully prosecuted in conjunction with the natural development of the other resources of this great country.'

"These reports are more to the purpose than the random talk of returned miners, and it is probable that this information, and more that has not been published, was before the Canadian cabinet when they made their decision regarding the regulation of the mines. Had the condition of the country been such as the miners say, there would have been much justification for the policy of exclusion which many have advocated. In that case, there was no possibility of developing the country. It was too barren and the climate too severe ever to permit



STEAMBOAT ON THE YUKON.

of permanent settlement. The miners would come and gather their rich harvest and depart, taking with them the riches of the nation. The mines belonged to Canada, and there seemed wisdom in excluding men of other nationalities from the country. They did not intend to remain in the country and had no intention of spending their gains in the country; and there seemed every argument in favor of a policy of restricting the mines to Canadians. The regulations adopted, provided they can be enforced in a lawless, unorganized country, are devised with the purpose of developing the country. Whether they can be enforced no one who knows the splendid discipline of the Northwest police can have a doubt. Provision has been made for the organization of the district. New roads are to be built and communications kept open, and every requirement for the development of the district will be secured. The reservation of every alternate placer claim is only just to the community as a whole, and will tend to promote law and order. The reservation of a royalty will cause more trouble, but it cannot be said that the requirement is unjust.

"The effect of the regulations will be, should the discoveries continue and mining cease to be gambling and become an industry, the more quickly to encourage permanent settlement in these regions and, as Mr. Dawson pointed out in his report, the miner will be the pioneer. While the Yukon district is at present far beyond the limits of ordinary settlement, we may be prepared to hear (1888) at any time of the discovery of important mineral deposits which will afford the necessary stimulus and may result, in the course of a few years, in the introduction of a considerable population into even its most distant fastnesses. To-day it may well be characterized by the term which has been employed in connection with

the Mackenzie basin, a portion of 'Canada's Great Reserve.' It appears, meanwhile, eminently desirable that we should facilitate, in so far as may be possible, the efforts of the miners and others, who constitute our true pioneers in the region, and to whom, in conjunction with the fur companies and traders, the conquest of the whole of the great northwest has been due. In the future there is every reason to look forward to the time when this country will support a large and hardy population, attached to the soil and making the utmost of its resources.

"The Canadian government has done wisely in adopting the policy thus suggested for them by their geologists. The temptation was great, in a country where the sentiment of actual possession has not hitherto had much to feed itself on, to follow a policy of restriction and cry, Canada for the Canadians. They have not done so and their wisdom will have its fruits in the organization of a new territory."

It is with a certain feeling of dissatisfaction that Canadians look upon the rush of prospectors and merchandisers to the newly found gold fields in Alaska. The routes all lie along the Pacific coast and through Alaska, and Canada gets no profit from the increase in travel. The Pacific route is open only three months in the year. The projectors of what is known as the Sault Ste. Marie and Hudson Bay railway think that at a cost of about $20,000,000 they will be able to open a route that will be open to travel for five months out of the twelve.

The scheme, according to the Toronto Mail and Empire, has gone beyond the talk stage and two companies, that already mentioned, and the Hudson Bay and Yukon Railway and Navigation company, have been chartered by the dominion parliament. From Missarrabie, the point on the main line of the Canadian Pacific railway

nearest to Hudson bay, a railway is to be built 220 miles to Moose fort, on the shore of Canada's great inland sea. Thence by a waterway of 1,300 miles Chesterfield inlet, at the northwest corner of Hudson bay, is reached.

The inlet extends west inland 200 miles. From here a railway 200 miles long will connect with the waters of Great Slave lake. From here, it is asserted, there is a navigable waterway for large boats to the mouth of the Mackenzie river, a distance of 1,300 miles. From the mouth of the Mackenzie a short railway of fifty miles would give access to the Porcupine river, a navigable tributary of the Yukon, by which rivers a journey of 400 miles leads right to the lately discovered gold fields. Ninety per cent of the whole distance is by water.

In the opinion of C. T. Harvey, engineer and general manager, this is the most important proposition next to the Canadian Pacific railway ever submitted for the consideration of the people of Canada. Mr. Harvey divides the results into four—(1) the rendering accessible of the gold fields, petroleum, salt and sulphur deposits, and the coal beds of the Yukon and Mackenzie basins; (2) the opening up for settlement of the Lake Athabaska and Peace river regions; (3) the giving access to the whaling and fishing industries of Hudson bay; (4) the benefits to accrue to Ontario, and especially Toronto, by becoming the base of so great a system of navigation and trade.

CHAPTER XXXI.

KNEW YUKON DISTRICT YEARS AGO.

RELIABLE information comes from Prof. James Dryden of the Agricultural College of Utah to the effect that the Canadian parliament knew of the gold mines in the Yukon district some years ago. Prof. Dryden acted as secretary of a select committee of the Canadian parliament in 1888. This committee was appointed to investigate the mineral resources of the Northwest territory. The report of the committee is printed in a volume of 800 pages, illustrated with maps, and the Klondike river does not appear in any of the maps.

But that part of the Yukon district now known as the Klondike figured extensively in the investigation. Now, when every source of information bearing in any way on the gold-producing area of the Yukon river is being placed under tribute, this report has assumed an importance not anticipated by the committee which made it.

The report is of peculiar interest in that it deals largely with the mineral resources of the Mackenzie river basin, for it is highly probable that this mighty stream will carry many Klondikers toward the Arctic circle next summer.

Prof. Dryden, in giving a synopsis of the report, writes as follows:

"As might be expected, the investigation, as it related

to mineral resources, was less satisfactory than in other directions; gold fields are not discovered by committees. But very much was elicited. Before proceeding to give more detailed information, let me quote the findings, or conclusions, of the committee in regard to the mineral resources:

"'Of the mines of this vast region little is known of that part east of the Mackenzie river and north of Great Slave lake. Of the western affluents of the Mackenzie enough is known to show that on the headwaters of the Peace, Liard and Peel rivers there are from 150,000 to 200,000 square miles which may be considered auriferous, while Canada possesses west of the Rocky mountains a metalliferous area, principally of gold-yielding rocks, 1,300 miles in length, with an average breadth of 400 to 500 miles, giving an area far greater than that of the similar mining districts of the neighboring republic.

"'In addition to these auriferous deposits, gold has been found on the west shore of Hudson's bay, and has been said to exist in certain portions of the Barren grounds. Silver on the Upper Liard and Peace rivers, copper upon the Coppermine river, which may be connected with an eastern arm of Great Bear lake by a tramway of forty miles; iron, graphite, ochre, brick and pottery clay, mica, gypsum, lime and sandstone, sand for glass and molding, and asphaltum, are all known to exist, while the petroleum area is so extensive as to justify the belief that eventually it will supply the larger part of this continent and be shipped from Churchill or some more northern Hudson's bay port to England.

"'Salt and sulphur deposits are less extensive, but the former is found in crystals equal in purity to the best rock salt, and in highly saline springs, while the latter is found in the form of pyrites, and the fact that these

petroleum and salt deposits occur mainly near the line of division between deep water navigation and that fitted for lighter craft, gives them a possible great commercial value. The extensive coal and lignite deposits of the lower Mackenzie and elsewhere will be found of great value when the question of reducing its iron ores and the transportation of the products of this vast region have to be solved by steam sea-going or lighter river craft.'

"Some of the testimony upon which these conclusions were based is highly interesting, though the investigation, of course, covered the whole basin of the Mackenzie, and only incidentally of the Yukon. But there is also valuable testimony showing the great auriferous value of the upper waters of the Yukon. Hitherto that great country up there was only of value as a fur preserve; that has been its chief, if not only, commercial value in the past. The great the 'Honorable Hudson's Bay company' enjoyed a monopoly of the fur trade, and its policy has been to keep the country in the dark. They at one time owned it by grant from England. They have forts established all down the Mackenzie and other important rivers, where they purchase the furs by barter from the Indians, and the trade has run up to several million dollars a year. These traders were mostly English and Scotch 'gentlemen's' sons, many of them marrying Indian girls or French half-breeds and spending their lives in the great northern seclusion, until retired in old age by the company. Some of these men were examined by the committee. They were very reticent about the fur trade, but told what they knew about the mineral and other resources of the country. At some of these forts there are English church and Roman Catholic missions established, and a few missionaries were

examined, and gave valuable testimony in regard to the great resources of the country. Dr. George M. Dawson, chief, and Dr. Robert Bell and Prof. Macoun of the Canadian geological survey, and others, who had traversed the country, also testified.

"Speaking of the mineral resources, Isadore Clut, O. M. I., bishop of Arindele, said: 'There is gold in the sandbanks of the Peace river, and in considerable quantities, but during the winter and in high water it cannot be mined. The miners make there from $15 to $20 per day. There is copper, and one river bears the name of Coppermine. It is found there in great pieces. I have seen little crosses made of it by the savages themselves when they were not able to have other metal. Sulphur abounds in several places. I have seen it on the Clearwater river, and above all on the west bank of the Great Slave lake. It is there in such quantities that the odor is annoying to those who pass by. Near Fort Smith there in a salt mine which is probably the most beautiful and the most abundant in the universe. There is a veritable mountain of salt. By digging a little in the earth, from six inches to a foot, rock salt can be found there. In addition to that there are salt springs, where during the winter the salt runs from these springs and forms little hills of salt. You have only to shovel and you can gather a fine salt, pure and clean. On the borders of the Peace river stones are found which are sufficiently precious to make rings of them. I have seen gypsum along the Mackenzie and a little below Fort Norman. * * * In the Peace river and the Liard river certainly there is gold in large quantities. It is found in the sandbars, and I fancy that mines will be discovered in the Rocky mountains and that the gold is carried from that part the same as in British

Columbia, on the other side of the mountains. I should imagine, therefore, that there is considerable gold in the Rocky mountains.'

"Dr. Dawson, who made geological explorations in the upper Yukon region, testified as follows: 'With regard to the gold on the Liard river, which is a tributary of the Mackenzie, I may state further that remunerative bars have been worked east of the country down toward the Mackenzie. The whole appearance of this country leads to the belief that important mineral deposits will be found in it, besides those placer mines. There are large quantities of quartz ledges along the rivers in many places on the Liard river; half the river gravel is composed of quartz and the whole country is full of quartz veins, some of which are likely to yield valuable minerals.'

"Q. 'Is it a gold-bearing quartz?'

"A. 'Yes, because we find gold in the bars, though not, so far as I have discovered, in the loose quartz. In fact, the whole country at the headwaters of the Liard and running across to the Yukon forms part of the metalliferous belt which runs from Mexico to Alaska and includes a great area of that country, which is as likely to be rich in minerals as any portion of that metalliferous belt. We should remember that in British Columbia and on the headwaters of the Yukon we have from 1,200 to 1,300 miles of that metalliferous belt of the west coast. This is almost precisely the same length of that belt contained in the United States, and I think there is every reason to believe that eventually it will be found susceptible of an equal development from a mining point of view. From circumstances to which I need not now refer, it has so far been more developed in the United States than on this side of the line.'

"Q. 'What is the average width of that belt of 1,200 or 1,300 miles?'

"A. 'About 400 miles, on the average. Fort Selkirk, or the ruins of Fort Selkirk, at the mouth of the Lewes river, which is one of the main branches of the Yukon, is about 1,000 miles due north of Victoria, without taking into account ten degrees of longitude which it is west, but it gives an idea of the depth of the country which is worth remarking. You find a country here 1,000 miles north of Victoria in which there is no doubt you can still grow barley and hardy cereals, a distance as nearly as possible identical with the whole width of the United States on the Pacific coast from the 49th parallel to Mexico, yet at Fort Selkirk we are still 750 or 800 miles from the Arctic ocean—nearly twice as far from the Arctic ocean as we are here in Ottawa from the Atlantic.'

"Q. 'That would make a square area of 520,000 miles. Is that what the committee are to understand?'

"A. 'That will express the area of the metalliferous belt in a general way and may be taken as a minimum figure. This Yukon country was first prospected in 1880 by miners who came across by this Chilkoot pass. Since then a yearly increasing number of miners has been going in. In 1887, this last summer, there were about 250 men, nearly 100 of whom are wintering at Forty-Mile creek, near the international boundary. * * * The gold which was taken out of that country last summer, not counting the Cassiar country to the south, but merely the Yukon district, was estimated by the miners at $70,000, but that is a very rough estimate indeed, because there is no way of checking it except by allowing so much per man on the average. There is an almost unprecedented length of river bars from which gold is

obtained in that country. I have not tried to estimate it, but here and there on nearly all those rivers gold is found in paying quantities. The gold-bearing river bars must be reckoned in the aggregate by thousands of miles in length.'

"Q. 'All those rivers, meaning the Yukon and its branches and the Liard and its branches?'

"A. 'Yes.'

"Though the Coppermine river lies east of the Mackenzie, and far from the Yukon, it may be interesting to give here the testimony of Dr. Dawson in regard to copper in that river. He said, speaking of the Coppermine river particularly, that 'there is every reason to believe there is a repetition along that river and in its vicinity of those rocks which contain copper on Lake Superior and which have proved so rich there. But that region seems to be beyond the reach of the prospector at present.'

"Enough has been said, I take it, to show that there is a country up north rich in mineral resources, and the riches are not, by any means, confined to one little tributary of the Yukon. That the country is rich in minerals, that it covers an empire in extent, there is every reason to believe, how rich no one can tell. There has been profitable placer mining at Forty-Mile creek, near the Klondike, for some fifteen years, and Fort Reliance (long since abandoned), which, I understand, is right in the immediate vicinity of the Klondike, was built away back by the old Arctic explorers. That the riches of the Klondike could remain hidden for these many years, though miners have been working all the time in the near neighborhood, affords some color to the belief that, after all, the California gold diggings will dwindle by comparison with those of the Yukon. It has long been

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the opinion that when the moss and timber are cleared off the river sides and gulches (similar to what miners were obliged to do in Cassiar), the diggings will be extensive and rich.

"The following extracts from a report made by Capt. William Moore in January, 1888, and which was published in the report of Mackenzie basin committee, is highly interesting as giving an idea of the mining operations that were conducted at Forty-Mile creek as far back as ten years ago:

"'According to information gathered from reliable sources: From the 1st of May to the 15th of July there has been taken out at least $150,000, three-fourths of which was taken out on Forty-Mile creek, as when a party of men came out early last spring on the ice and confirmed the statement of the strike of coarse gold on Forty-Mile creek, most of the men from Lewes river and the Hootalinqua went right down to the new strike, which only left eight miners on the Hootalinqua, and seven on Cassiar bar and the vicinity, four men on Pelly river, fifteen on Stewart river and seven on Sixty-Mile creek.

"'With regard to the richness of Forty-Mile creek. Miners would not work $8 diggings; they did not consider that amount as wages. They did make all the way from $10 to $125 per day.

* * * * * * *

"'Every stream entering into the Upper Yukon has gold in it. The best paying bars of this section, so far as discovered, are situated from the mouth of the Hootalinqua river down about seventy-five miles. Cassiar, Densmuir's and McCormac's bars, as marked on the sketch map, are the best-paying ones, yielding from $8

to $40 per day; also up the Hootalinqua river at different places the above pay has been obtained.

* * * * * * *

"'White river, 125 miles below Pelly river, is navigable for about eighty miles, and prospects of $5 and $8 per day have been found. The upper portion of this river is a great resort for caribou, moose and beaver. Stewart river, fifteen miles below White river, is navigable for about 250 miles. The estimated amount of gold taken out of this river in the seasons of 1885 and 1886 is about $140,000. There being very little fall in this river, miners experience considerable trouble in working sluices. Some parties are now negotiating to take steam pumps up there, as there is plenty of fine gold diggings on this stream which will pay from $10 to $50 per day with sluices. It is known that miners have made as high as $140 a day with common rockers, although the gold was minutely fine.'"

CHAPTER XXXII.

SOME HISTORICAL GOLD CRAZES.

GOLD HAS been called the "pioneer" of civilization, because it led men into the wilderness, across unknown seas, and over wide prairies and desert plains. It has been pointed out that every "gold rush" was the beginning of new states and countries; that the discovery of gold in some far-off locality did more to populate the land that the most energetic efforts of immigration agents or government officials. The Klondike rush is simply history repeating itself. California saw just such exciting times in 1849; Australia in 1851. Then came the "crazes" of the Frazer river in 1858; of Northern Arizona in 1874; of Tombstone in 1879; of South Africa in 1880; of Lower California in 1889; of Creede in 1889; of Cripple Creek in 1890, and Horqua Hola in 1892.

To gold the entire Pacific coast owes its present prosperity. The existence of gold had long been known in California, and washings had been carried on in the southern part, near the San Fernando mission, as early at 1841. No discovery had been made, however, which attracted much attention or caused excitement previous to the occupation of the country by the Americans.

A piece of native gold was picked up in an excavation made for a mill race on the south fork of the American river at a place now called Colona. By the end of

December 1848, washing for gold was going on all along the foothills of the Sierra, a distance of 150 miles.

The first adventurers came from Mexico, the South American coast, and even from the Sandwich islands. The excitement eventually spread east, and in the spring of 1849 the rush of emigration across the plains and by way of the Isthmus of Panama commenced.

The epidemic reached the east in the fall of 1848, and before the winter of 1848-49 the gold of California was the ruling topic of conversation in every Atlantic city. People were everywhere making ready to start for the new El Dorado. By January, 1849, ninety vessels, carrying 8,000 passengers, had sailed from various ports, bound for San Francisco, and seventy more were advertised to sail. Pulpits resounded with warnings against riches as the source of all evil, but the preachers, when they could, took ship for the land of gold like other people. Early in 1849 the population of San Francisco swelled from 2,000 to 14,000. Four hundred sailing vessels were abandoned by their crews at their anchorage in the bay. Labor was worth $10 a day. The first Pacific mail steamer passed through the Golden Gate. In that year, 1849, 549 vessels entered the port, carrying 35,000 passengers, and 42,000 immigrants arrived by the overland journey across the plains. In the same year the yield of the mines was probably not less than $18,000,000.

It was estimated that 100,000 men reached California during that year, including representatives of every state of the union. The emigration to the land of gold continued with but little abatement for three years, but the excitement fell off in a marked degree in 1854.

California discoveries gave rise to a general search for precious deposits in the Pacific states, and this was

followed by wild speculations. A great deal of money was sunk in opening new mines and in attempting to develop old ones which had never yielded anything of value.

Fifty thousand men were engaged in mining for gold in California at the close of 1850, and during 1852 and 1853 fully 100,000 were at work. At this time the California gold washings reached about $65,000,000 in value a year.

At this period the diggings for gold were chiefly along the rivers. These were "flumed"—that is, the water was diverted from its natural channel by means of wooden flumes—and the accumulation of sand and gravel in the former beds was washed.

The first and richest "placers," such as the bars on the American, Yuba, Feather, Stanislaus and other smaller streams in the heart of the gold region, yielded each miner as much as $1,000 to $5,000 a day.

The miners were excitable and frequently left valuable localities in search of something better. Occasionally a kind of frenzy would seize on them and thousands would flock to some very distant locality on the strength of newspaper and other reports. Many would then perish from disease and starvation, the rest returning in poverty and rags.

The effect of the gold discoveries in California upon the fortunes of that state and of the world at large are too well known to require any description here. It was a revolution. Michael Chevalier predicted that it would cause such a depreciation in gold as compared with silver that the former would practically be demonetized, and it needed energetic efforts on the part of English financiers to check a tendency toward a general want of confidence in the yellow metal.

Before three years elapsed the discoveries in California were duplicated in Australia. Some years before Sir Roderick Murchison had predicted that gold would be found in the quartz and in 1851 Hargreaves, who had been at the diggings in California, looked for it in the Bathurst district of New South Wales, and found what he was looking for. His discovery was at first received with incredulity, but when Dr. Kerr found on the Turon a lump of gold worth $21,000, and a nugget was taken to Sydney which sold for $6,200 there could be no question of the facts. Workmen of all classes deserted their callings to hunt for gold, and they were so successful that in the fall of 1851 the average earnings of prospectors rose to $5 a day. Simultaneously all articles of commerce advanced; wheat quadrupled in value; potatoes rose from 7 shillings to 21 shillings a hundred weight, and freight from Sydney to the mines from $12 to $150 a ton. When the news reached Europe thousands of adventurers embarked for Australia, declaring that its treasures cast into the shade those of California.

Melbourne was jealous of Sydney, and a generous reward was offered for the discovery of a gold field within the province of Victoria. The result was the discovery in August, 1851, of the diggings of Ballarat. Ten thousand adventurers flocked to the spot, which maintained its reputation as the greatest gold camp in the world till Mount Alexander and Bendigo creek were discovered. Before New Year's it was said that there were 50,000 miners at Bendigo, and Melbourne was depopulated. Flour, which was worth $100 a ton at the seaboard, was in demand at $1,000 a ton at the mines; oats rose eightfold, mining tools sold for anything the dealers chose to ask. In that winter it was said that an average of 15,000

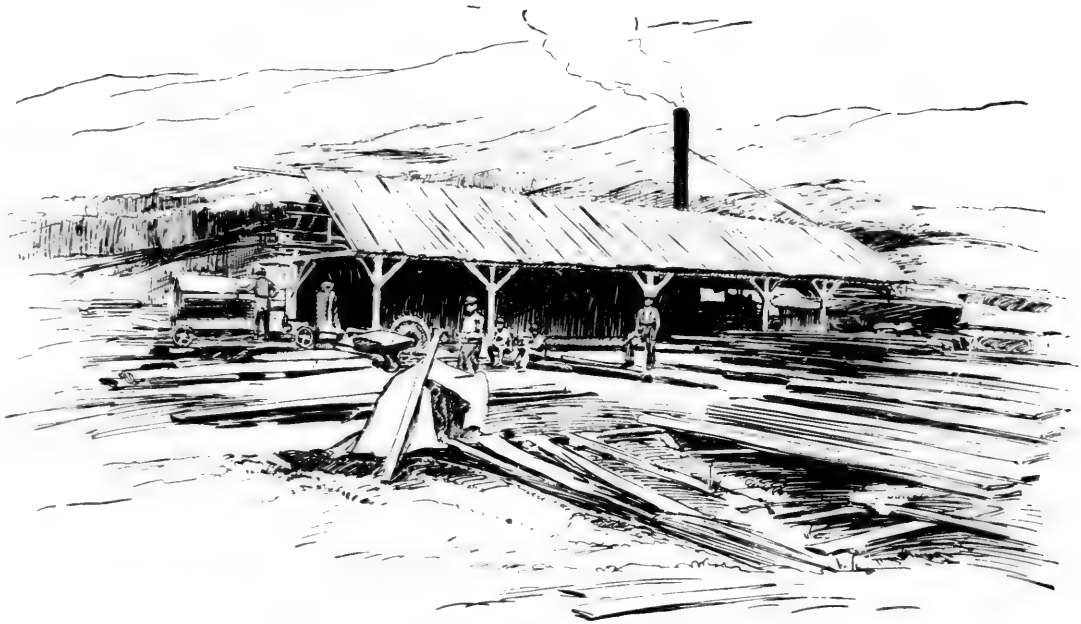
adventurers arrived each month at Melbourne, and carpenters and masons were getting $10 a day.

The gold find proved to be no flash in the pan. The yield swelled month by month and year by year, until in 1856 the export from Melbourne alone, without taking Sydney into account, was over $60,000,000. In the same year the mint at Sydney received $7,500,000 in gold from the mines, and New Zealand produced $10,000,000.

The gold of Australia was found in the silurian rocks, especially in the more ancient beds, and in the gravel or debris of those rocks. It occurs likewise in the gravel of the drifts of the miocene of the territory. The greatest finds were made in quartz veins traversing a lower silurian schist rock formation, on spurs of the great Australian Cordillera. The silurian strata are upheaved and twisted; the veins show marks of the action of fire, as if they had forced their way through the rocks in a molten condition. No rule can be laid down in regard to the richness of the veins.

The Kern river fever raged through the United States in 1855, and at least 5,000 miners went to that distant region of the Sierra, only to find that the gold deposits were already worked out.

In Australia's heyday, just as the yield of the California placers had declined to such a degree that some of the most famous diggings were given over to Chinamen, rumors, which gradually gathered strength, reached San Francisco that gold had been discovered in the bed of the Frazer river. The first finds were made in 1856; it was not till the spring of 1858 that Frazer river gold began to appear at the money-changers' establishments on Montgomery street. An exodus set in for Victoria, just as now for Juneau. By June, 1858, 10,000 miners were at work between Langley and the forks of the



SAW-MILL ON THE YUKON.

river, and every bar for 140 miles of the Frazer's course, and along the Thompson, was being prospected. Two flourishing towns, Yale and Hope, sprang up on the river banks, and before snow fell 20,000 adventurers are said to have left California for the new camps. Of these the great bulk endured untold hardships and found no gold. They returned to San Francisco discouraged and penniless and denounced Frazer river as a humbug, just as some of the unlucky Yukon adventurers may possibly be denouncing the Klondike next year.

But Frazer river was a real find, which added, in the course of twenty-odd years, more than twice as much gold to the world's supply as Spain had obtained from the Americas in the same space of time. Estimates of the yield of 1858 vary so widely that it is difficult to ascertain the truth. Good, the Canadian minister of mines, reckoned that the output of that year was not over $500,000, but McDonald, figuring from the reports of bankers and express companies, set it down as $2,150,000. This was chiefly scale gold, comminuted by hammering between boulders into fine flat scales, and mixed with considerable flour gold. The yield increased in 1859 and again in 1860; for the three years the total output was probably something like $6,000,000 or $7,000,000. It did not convulse trade, nor set the world crazy, as the discoveries in California and Australia had done, because the discouraging reports set afloat by returning miners in 1858 cooled popular ardor, and threw a bucket of cold water on the spirits of the adventurers.

But the furor was rekindled in 1861 by fresh discoveries in the Caribou mountain country, and at Quesnel Forks diggings, at the head waters of the Frazer and Thompson. Here the gold found in the streams was coarse, and the mountains generally consisted of slates,

which, in lower latitudes, had been found to be auriferous. The best fields for mining were the beds of buried rivers below the level of the modern streams, as in the Sierra counties of California. In the deposit on the beds of these prehistoric rivers were found richly concentrated gold leads, which were reached by shafts and levels. It was from these that the chief wealth of Caribou was extracted. In 1861 $2,000,000 of gold was shipped; as much more in 1862; an increased quantity in 1863, and though after that year the excitement subsided, the influx of gold-seekers ceased, and many miners abandoned the country. Mr. Bancroft estimates the total yield of the region in twenty years at somewhere between $30,000,000 and $40,000,000. It will average $4,000,000 a year to-day.

But liberal as the output of Caribou was, it caused no stir throughout the world, and from 1861 to 1881 the mining population only averaged about 1,500. In the beginning it witnessed the inflation usual in new mining camps; miners got $10 and $12 a day, and flour was $1 a pound; but afterward, though the actual yield wa larger than it had been in the early days, and Antler and William creeks were pouring out the precious metal by the pound, things settled down to a steady business-like basis, and the people did not get richer there than anywhere else. There was a brief period when Caribou figured in the newspapers as a rival to Ballarat and Frazer river. But it did not last, though it may have deserved to last.

The stories told by old miners who took part in the Frazer river rush are on the lines of the tales related by returned Klondikers.

Over the sides of the Frazer canyon everything had to be packed on the backs of prospectors or Indians, and

provisions frequently fell short. Many times mining had to be suspended for want of food; parties left the camps for the river mouth in search of supplies or allayed the pangs of hunger by eating wild berries. There were no cases of starvation on the Frazer, as food was always within two or three days' reach; and the cold, though severe in December and January, was nothing like the temperature on the Yukon.

At Antler creek nuggets could be picked out of the soil by hand, and the rocker yielded fifty ounces in a few hours. Shovelfuls sometimes contained $50 each. Individuals were making $1,000 a day, and the output of sluice and flume claims was sixty ounces a day to the man. Much of the ground yielded $1,000 to the square foot. At William creek several claims realized 100 ounces a day. One man obtained 387 ounces in a day and 409 ounces on the day following. At Barkerville the Ditter company washed out in one day 200 pounds of gold. Several claims yielded 100 ounces and more daily. The Wake-up-Jake company washed fifty-two ounces from a panful of dirt.

At Van Winkle Ned Campbell and associates took out 1,700 ounces in three days' washing, and near there the Discovery company, consisting of four men, took out forty pounds in one day, and cleaned up at the end of the season with $250,000. At Lowhee creek Richard Willoughby worked a claim on a blue slate bed rock within four feet of the surface, and obtained eighty-four ounces in one day and $1,000 in the week, while near him two brothers named Patterson took out $10,000 in five weeks, one day yielding seventy-three ounces, partly in nuggets weighing ten ounces each. At the Quesnel forks the clean-up for the day was sometimes as much as two men could carry.

The discoverers of the rich diggings at Antler creek were three men—Rose, Diety and McDonald. What became of McDonald, who was a French-Scotchman from Cape Breton, is not known. Diety died a pauper at Victoria in 1877. Rose wandered away from camp one day, and for weeks no one knew where he was. A party tramping through the snow one day came upon his body. His tin cup hung from the branch of a tree. On it was scratched with the point of a penknife, "Dying of starvation. Rose."

While there has never been a year when the gold fever has not raged with more or less intensity in some quarter of the globe, the next great era of intense excitement which attracted the attention of the whole world was in the early '80's, when the extraordinary gold fields of the Transvaal, or South African republic, were discovered.

The quartz formation of the famous Witwatersrand reef differed entirely from any hitherto known gold-bearing ore, and at first many were skeptical of its value. But when it became known that the reef extended in an unbroken half circle for forty miles and formed one of the richest fields in the world, the rush across the "veldt" began. Thousands traversed the 1,000 miles which separated "the Rand" from the English colonies and the peaceful little Dutch republic was invaded by a wild, greedy, excited mob of all nationalities. The town of Johannesburg rose from a single hut to a city of nearly 100,000 inhabitants in less than two years.

Fabulous fortunes were made in a few months. These were acquired, however, not by hard work in the mines, but by floating bogus companies when the fever was at its height. There was no placer mining, and before the reef could be made profitable immense machinery

had to be carried over hundreds of miles of rough country. But the gold was there, and the output last year equaled that of any other country of the world.

The United States had its next great epidemic of gold-mining fever early in 1889, when the discoveries in Lower California caused intense excitement along the Pacific coast. The Santa Clara district, to which the crowds rushed, was about 120 miles south of San Diego, and forty west of Resanaga. During March, 1889, an average of 600 men reached the mines each day. The town of Ensanada was practically deserted by males.

One of the first workers washed out $4,000 worth of gold in four hours near the Rancho Real del Castillo. The pan deposit was mainly of black sand, from which the gold was easily extracted by the aid of amalgamated copper plate. A Mexican digger took out $1,500 in two days in the space of eight feet square.

The price of provisions during March at the diggings was tremendously high. Five dollars was paid for a fifty-pound sack of flour, and $3.50 for a ten-pound sack of oatmeal. Drinks were 25 cents each.

It was in this same year, during the summer of 1889, that N. C. Creede, who killed himself recently, discovered his famous "Holy Moses" mine in Colorado, and other rich deposits, which attracted thousands to the wildest regions about the Willow creek, where the town of Creede was subsequently built.

Meantime prospecting had been going on in the Cripple creek district of Colorado, and it was to this vicinity that the next great rush of gold-seekers was destined to be directed. "Bob" Womack, a cowboy, was the first to find ore in Poverty gulch. He took it to Colorado Springs late in 1890, and the float was found to yield $24 to the ton. Edward de la Vergne, T. F. Frisbie and Dr

J. P. Grannis then put up the Broken Box ranch on Cripple creek, located a claim under the name of El Dorado. This was the first claim registered in the district.

Next M. C. Lackford located the Blue Bell in Squaw gulch, and "Bob" Work, a Denver barber, located the Rose Maud, which showed on one of the earliest assays no less than $2,300 per ton.

In July, 1891, the Buena Vista and the Gold King mines were located. When the Buena Vista was sold to Count Pourtalis and T. C. Parrish, of Colorado Springs, the attention of the entire country was called to the Cripple Creek gold fields, and the rush began. Over the wind-swept Rocky mountain tops, or waist-deep through the snow in the gulches, the determined body of treasure-seekers poured upon the district and claims were staked in all directions.

From Mineral hill to the creek bed the mountain sides were covered with claims, as was all the ground on both sides of the lines, regardless of the character of the rock.

Many hardships were endured at Cripple Creek in these early days of its popularity, and to such as were successful the life was a rough and distasteful one at best.

One of the wealthiest men at Cripple Creek at the end of 1893 was Winfield S. Stratton, who was accounted to be worth from $15,000,000 to $25,000,000. He had tried his luck in all the camps of the state of Colorado, and was one of the first to enter the Cripple Creek district. At that time he had no money at all. After prospecting around he made up his mind to pack his traps and go back to his old work as a carpenter, when he discovered the yellow metal on a piece of float picked up on ground owned by "Dick" Houston, the Indian scout, and the "Father of Cripple Creek."

It was the morning of July 4, and Stratton called the claim he located the Independence. He had at that time no great hopes of the claim, but a few weeks later the assayers told him that the rock he had sent them from this location ran $300 or $400 to the ton.

It is reported that one day a man went to Stratton and said: "Will you take $10,000,000 for your mine?"

"Old Man" Stratton, as he was always called, replied: "Do you happen to have a million in your pocket?"

The other said: "No, but I can get it."

Then Stratton added: "Well, if you would give me ten times ten millions and put a million in gold down to bind the bargain, I wouldn't sell. If I had the money I wouldn't know what to do with it. As long as it is down in the mine no one can take it away from me, and I can take it out as fast I please."

On Battle mountain, just above the "Independence," was the second largest prize won by the early explorers of Cripple Creek. This great gold mine is called the Portland. Early residents tell the story of its beginning as follows:

"'Jimmie' Doyle had a bit of a patch on top o' the mountain that might have been big enough for a garden and then again it might not. It was altogether about a sixth of an acre. But it had a vein. Close by 'Jimmie' Burns—it is Mr. James F. Burns now—had another bit of a patch. They were both Irish and both from Portland, Me., and so they put their claims together, and called their mine 'Portland,' in honor of their native town."

Both were tenderfeet and didn't know just what to do with their property, so one day John Harnan came along and said to them:

"Boys, what'll you give me if I'll find you pay rock?"

Doyle and Burns agreed to give Harnan a third if he found the pay rock. He found it that afternoon, and a year ago Harnan's third of the mine was worth $2,000,000 in the market.

The Portland has produced several millions of dollars' worth of gold. Stories such as these drove Colorado wild in the early days of Cripple Creek mining, and from 35,000 to 50,000 people flocked to the fields. None of these places which have been the objective points of gold-fever rushes, however, seem to have been as inaccessible as the new gold fields of northwestern British Columbia, and whatever hardships were suffered by the '49ers of California or the bush diggers of Australia may be multiplied to a thousand fold for the excited hordes who are flocking to the Klondike.

CHAPTER XXXIII.

GOLD IN AMERICAN DESERTS.

GOLD HAS BEEN responsible for many "crazes," but probably the wildest and craziest stampede ever known in the southwest was that to the Rocky Belle camp in northern Arizona, in the region of the Moqui Indian reservation, in December, 1874. The region is 8,000 feet above the sea and lies among snow-clad mountains. It was an unusually cold winter when the news went abroad that Hank Binford and his companion had struck a whole mountain of gold rock that assayed over $90 to the ton. The report seemed incredible at first, but when samples of the ore were seen by miners in Tucson, Albuquerque and Los Angeles they proved sufficiently "rich" to satisfy the most skeptical.

A week more and over 2,000 miners from every part of Arizona and southern California were moving day and night, scarcely stopping for food and sleep, toward the Rocky Belle camp. Hundreds of men traveled 700 and 800 miles on foot, and with mules and donkeys, to the new diggings, and nearly all traveled across desert and mountain for a distanec of 250 to 300 miles. As the multitude journeyed on the report of the richness of Hank Binford's find grew until it seemed as if wagon-loads of rich gold ore awaited the travelers.

Merchants and professional men in Maricopa and Tucson, and that part of southern Arizona, became imbued with the spirit of the miners, and, turning their busi-

ness over to others, joined in the movement on Rocky Belle. The hardships that the fortune-seekers suffered in the mountains will never be fully known. A large number of men coming out of the warm, balmy air of the semi-tropic valleys lost their lives among the snow-banks and ice in the mountains, and many a man was made an invalid for life by exposure to the biting cold during the stampede.

A severe blizzard raged in the mountains for several days while the miners were slowly trudging through them. In one party of over 100 men from New Mexico four men were frozen to death one morning, and it is thought that fully twenty more died in the same way in the mountains at that time. To this day there are in California and Arizona gray-headed miners who lack a finger, a toe or an ear lost in the terrible cold of that stampede.

When at last the Rocky Belle diggings were reached it was soon seen that there was no ore in the district worth the digging except in the claims held by Hank Binford and his friends, and that the reports of their finds had been exaggerated beyond all reason. Binford's own mine petered out a year or two later, and he got only a few thousand dollars from it. The specimens of ore shown in Tucson and Los Angeles were the very choicest from the mine, and not hit or miss pickups, as had been said of them.

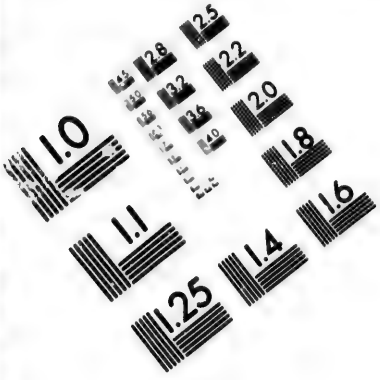
Along in the summer of 1878 a miner named Stevens wrote to a friend in Phoenix that he had found a claim that beat anything in mining this side of the Comstock lode in Nevada, and that with a common iron mortar and pestle he had pounded out from $70 to $100 worth of gold dust a day. The claim was located 120 miles northwest from Kingman, near the since famous Harqua

Hala mining region, and there was a chance, so Stevens wrote, for other men to strike it rich up there.

Of course such news could not be kept quiet. It traveled with miraculous speed through every camp in the Salt River valley and over to Prescott. In less than two weeks all that part of Arizona was deeply stirred by the reports, which no one seemed to have time to investigate, of the richness of the mines that Stevens had found. A thousand or more miners caught the fever so badly that they started on foot across the country for Stevens' camp without delay. It was a hot, dry summer, and the journey entailed several weeks of severe physical labor, torturing thirst and the endurance of a temperature that usually stood over 110 degrees in the shade. A dozen men died from fever and in wild delirium under that awful sky, and as many more miners never recovered from disorders caused by the privations of that stampede across the desert of Arizona.

Having arrived at the Stevens camp the excited men realized that there were claims worth working by about 100 men. Several hundred claims were staked out in less than a day after the excited miners got to the scene, but in a fortnight the camp population fell from 1,200 to less than 400. In a month more about 100 persons were left to do all the mining. The camp was abandoned entirely ten years ago.

With the possible exception of the rush to the Leadville mining district in Colorado, there has been none anywhere in forty years attended with excitement that followed the news of the finding of great deposits of gold and silver in Tombstone in 1879. Miners from every part of the Pacific coast caught the fever for gold, and as week after week samples of the Tombstone rock were more widely circulated, and rumors went forth concern-



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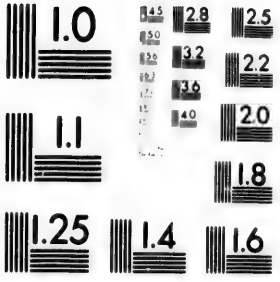

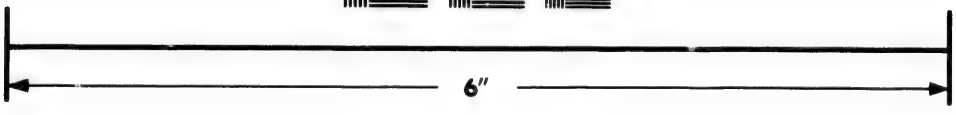

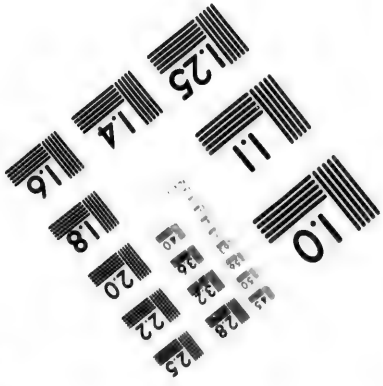

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ing the fortune this or that man or company was getting out of the hills and mountains about the new camp, thousands started for Tombstone. Hundreds of young men and youths in the older states were wild with zeal to hasten to the new El Dorado, and started across the continent with little or no preparation.

In less than four months after Gird and the Hawkinses began getting several thousand dollars a day from their mines there were over 6,000 persons in the camp, and several months later Tombstone had a population of over 10,000 men and 200 women. There never was another camp in the southwest like that at Tombstone in 1879 and 1880. Indeed, there have been very few similar communities in the world. For over seven months the daily output of precious metal averaged about $50,000. Over a dozen men went there penniless and came away worth over $500,000 in less than a year, and 6 or 7 men struck it rich and sold out for over $1,000,000 each. Fully half the population walked hundreds of miles to get there.

No railroad ran through southern Arizona in those days, and the awful Colorado and Mojave deserts had to be crossed in wagons or on foot by the multitudes of fortune seekers from California. Desert sand storms were encountered and for days travelers to Tombstone endured a temperature of over 130 degrees in the shade. Many a man died on the hot, sandy plains. Miners on their way to the new camp from the east and south toiled across the Arizona alkali plains, through immense cactus areas, and risked their lives in the then hostile land of the Apache Indians. But hardship, pain, suffering and risk of life were all secondary to an early arrival in Tombstone and the location of a mining claim. When Tombstone was reached there were new privations and more

physical distress for the greater number, especially for those who had hastened from offices, stores, shops, clerkships and the pastor's study. Over one-third of the men in camp had very little money or none at all, and knew no way of earning it except by the hardest kind of manual labor, to which they were unused.

It cost $1 a night to sleep in a dirty, rough pine bunk. Water sold at 20 cents a gallon, a small dish of beans at 50 cents, tallow candles at two-bits (25 cents), common overalls at $5 each, smoked hams at $12 each, and cowhide boots were disposed of as fast as they could be hauled to camp across the desert from Los Angeles and Yuma for $35 a pair. It was a "ground-hog" case with these commodities for the first 16 months of Tombstone —take them at the price asked or go without. In 1881 all the Tombstone mines that paid well were in the hands of a few persons, and the population of the place had gone down to 5,000. In 1883 the mines, with two exceptions, began to peter out, and the population dropped to 3,000. Since then it has gone down slowly to less than 1,000 souls.

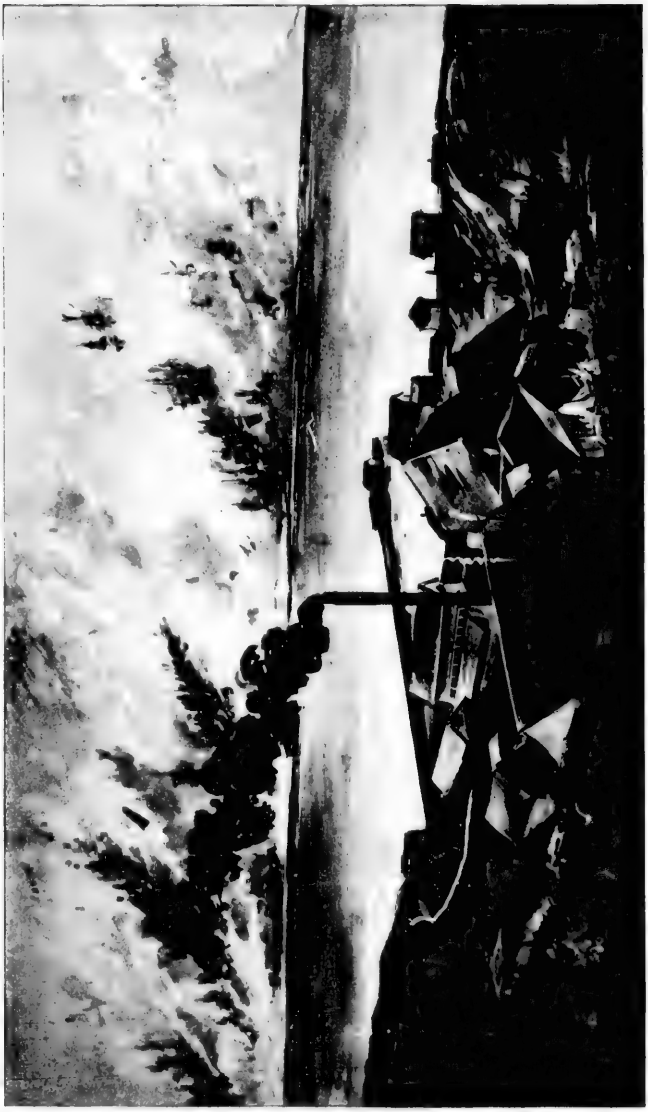
Thousands of people will never forget the rush for the Harqua Hala diggings in the spring of 1892. The mines were found in the northwestern part of Arizona, close to the Colorado river, and the boundary lines between Arizona, California and Nevada. For several months in the winter of 1891-2 there came almost every week, news of the big prospects that a half dozen miners, who had been moving from one camp to another in the territories and in Mexico for nearly a generation, had at last come across at Harqua Hala.

Along in March and April quantities of gold dust and nuggets from the mines came into the hands of bankers in San Bernardino and Los Angeles. The newspapers

published reports as to the prospects at Harqua Hala, and in a week or two there was another general rush for the diggings. The railroads did a land office business for several weeks in carrying men as far as the Colorado river. From there the travelers to Harqua Hala packed themselves on little river steamboats at exorbitant rates of travel. Hundreds of miners who had hardly a dollar tramped over the mountains 150 and 200 miles to the mines. Some men in their anxiety to get to Harqua Hala with their camp outfits and personal belongings, packed them in barrels and rolled the barrels over 100 miles to the camp.

Even the schoolboys caught the infection from their elders, and ran away from school and home. Several persons starved to death in the stampede. In forty days the population of Harqua Hala grew from 50 to over 2,000. As is generally the case, the few good mines there were taken up before the news of the find went abroad, and there was nothing for the deluded miners to do when they got to Harqua Hala but sit about camp and watch their more lucky associates dig out the rock. Prices for all kinds of food went to the top mark with rapidity. After a few weeks' idleness the mining population at Harqua Hala dwindled away at the rate of 100 or more a day. A large part of them are now searching among the mountains, through the canyons, on the desert, and in the foothills for prospects of their own. A good, active miner will locate half a dozen mining claims in a year, but less than 10 per cent of these are ever worked.

Had not the Klondike rush turned the undivided attention of gold-seekers to the arctic placer mines in the Upper Yukon basin, it is highly probable there would have been a rush of some magnitude to the gold fields in the Mojave desert of southern California.



TREADWELL GOLD MILLS, ALASKA.

The rich fields of the Randsburg district have been known in California for several years, but those who knew of the deposits were careful not to advertise their good fortunes too widely. It was not known until recently that the district was as rich as it is.

The Rand district, as it is called, is situated in Kern county, southern California, almost on the San Bernardino county line. It is in the heart of the Mojave desert. The surrounding country is a sandy plain from which rise barren mountain ranges and isolated masses of volcanic rock. Plains and foothills are scantily covered with sagebrush and mesquite. The district as now constituted contains 144 square miles, but the whole country between the Colorado river and Tehachapi mountains has the same characteristics as the Rand district proper. Gold is most plentiful in the region from Mojave to the Panamint range, 115 miles, the largest output being at the Rand.

The principal towns, camps and milling points are Randsburg, Johannesburg, Garlock (or Cow Wells), Goler, Red rock, Black mountain, Cuddeback lake, Garden station, Slate range and Panamint range. Altitude varies from 2,500 feet at Kramer to 3,500 feet at Randsburg and 4,500 feet in the adjacent hills. The first active prospecting dates back only three years ago—i. e., early in 1894. The first quartz lead was discovered in April, 1895, and the Rand mining district was formally organized Dec. 20, 1895. The most important strikes occurred in 1896, when the Butte, Kinyon, Wedge, King Solomon and St. Elmo mines were brought to light. From then on the town magically grew to its present population of about 3,000.

The auriferous deposits are abundant, so far as developed, and run sufficiently high grade to admit of mining

with profit. The precious metal exists mainly as a free-milling, gold-bearing quartz, though so closely associated with sulphurets of iron that treatment of resulting concentrates is necessary. The free-milling quality enables the prospector by simple process to test his finds. Miners, speculators, tradesmen and laborers are constantly going to Randsburg, and most of them become permanent residents. They come principally from California, Colorado, Montana, Nevada and Arizona, with scattering recruits from other places.

While more than 5,000 claims have been located and 1,200 recorded, the mines producing considerable quantities of milling ore are limited to about twenty—viz., the Rand, Olympus, Trilby and Yellow Aster (comprising the Rand group); the Yucca Tree, Winnie and Merced (comprising the Stringer group); the Gold Coin, Minnehaha, Black Hawk, Good Hope or "Kinyon," Butte, Monkey Wrench, King Solomon, Val Verde, Bully Boy, St. Elmo and Tea Kay or "Wedge." Shafts have been sunk on these properties from 30 to 175 feet, and the value of ore milled up to March, 1897, was a third of a million dollars. This does not take into account the immense quantity of valuable ore on the dump, or the bodies opened up but not mined. The best shippers are said to be the Rand, Butte, Wedge and St. Elmo.

Owing to scarcity of mills the development of new mines has been somewhat retarded, and there is a large quantity of ore from the earliest-worked shafts awaiting reduction. There are nine custom mills in this section, six being at Garlock, one at Mesquite springs, one at Koehn's springs and one at Cutterback lake. Their combined capacity is about 125 tons each twenty-four hours.

The nearest stamp mills are at Garlock, down hill from Randsburg, in a valley where there is a supply of water.

Here are found the six mills that handle most of the Rand ore. They are of fairly modern construction, but could be bettered, and probably will be as the camps get older. Only one is equipped with a cyanide plant to handle concentrates. They are kept busy day and night, and as fast as sufficient water supply is developed others will no doubt be built. The average price for hauling ore from Randsburg to these mills is $2.50 a ton, with a $5 charge for milling, which prices favorably compare with some older camps where fuel is much cheaper. Considerable ore has been sent to the Colorado smelters for treatment; it carries $60 to $150 to the ton in gold and is a very desirable class for smelting.

It is estimated that between 4,000 and 5,000 claims have been located in the Rand district. Of this number only one-fourth have as yet been recorded, and not much assessment work has been done.

The mineral law permits a prospector to take up as many claims as he can locate and erect monuments to mark. He can hold these claims, after being recorded, until January of the year following the year of location. It is no uncommon thing for one man to own thirty or forty claims, on many of which the prospector's pick has hardly been used. This differs from the Colorado law, and results in a man being able to take more chances in the lottery.

Many prospectors are now scouring the country around Red rock, Black mountain and Goler to find the mother lode whence the rich placers in that region come. It is even thought that the Randsburg ore is only an outcropping from the mother lode, and that somewhere near Black mountain will be found the central deposit. The new-comer has as good a chance as anybody else to test the assumption.

A couple of men with three burros and $300 or $400 in cash can prospect for four months in the Panamint country, northeast of Randsburg, with excellent chances of bringing back a goodly pile. The more ready money one has the better the likelihood of getting hold of a promising prospect hole closer to the settled district.

Adjacent to Randsburg nearly every foot of ground is located, but some miners, while waiting for employment in the new shafts, are making $2 to $5 a day washing gravel in the placers near the St. Elmo mine. There are many applicants for temporary work, and it is not advisable to depend too much on the chance of securing immediate employment.

The lack of water handicaps the Randsburg miner, and the great necessity of the place is water for domestic use and milling. Drinking water is hauled from Garlock, but it is not first-class in quality. Some six miles distant is a well, which supplies 7,000 gallons a day, which is pumped to a reservoir and thence carried to Johannesburg. Water brought from the Skilling well is sold in Randsburg at 4 cents a gallon. Well boring is going on and it is believed an abundant supply of water will be secured through artesian wells.

In the Rand group free milling ores run $45 to $175 a ton. In one rich pocket the ore ran $1,200 a ton. The St. Elmo group of mines is five miles southeast of Randsburg, in a perfectly flat country, where the ground can be loosened by a plow and then handled by washer. Some of the ore has yielded $2,000 a ton. The first trial shipment to smelter realized $800 for 740 pounds, and a general average shows $105 a ton after subtracting freight and treatment charges. The surface dirt is a gold-bearing gravel worth $2 a ton. At Goler in a canyon, three miles from Garlock, a nugget was found worth $1,000, and a

number of nuggets have been taken out ranging in value from $35 to $200.

Kramer station, from where the wagon road leads to the gold diggings, is on the Santa Fe. Two four-horse stages leave Kramer for Randsburg; distance, 26 miles; time, 3 hours; fare, $2.

The day laborer can make fair wages, either by working in the mines (though that avenue of employment does not now call for many men), or by carpentering, or by hauling water, or by transporting ore to the mills, or by freighting to and from the railroad station. There is always the chance to prospect for gold, either on one's own account or by being "grubstaked."

Living expenses are not unusually high. They are equivalent to Los Angeles prices, with, say, 25 per cent added. Restaurants charge 35 to 75 cents for a meal, and a cot for the night in a tent or dormitory costs 50 cents. Hay is sold for $20 a ton, wood from $8 to $10 a cord and coal $15 a ton. Mesquite, which grows on the desert, is the usual fuel. The rates for hauling freight are low, being only $5 a ton from Kramer in carload lots; less than carloads, 30 cents per hundredweight. Fuel is at hand, in the shape of mesquite and sagebrush, sufficient for the camp fire and miner's hut, but a poor dependence for the steam engine or even the regular house range. Crude petroleum is used to a limited extent, but costs rather more than coal.

Gold exists in larger or smaller quantities in every portion of the world. It has been found in almost every state of the union; in Devonshire, Cornwall, Wales and Scotland in Great Britain; on the sands of the Rhine, the Reuss, the Rhone, and the Aar; at Salzburg, in the Tyrol, and at Zell; in the valleys of Toppa, Sesia and Novard in Piedmont; at Peschiera in Lombardy; on the Tagus in

Spain; in the rivers of Provence; in southern and eastern Siberia; in fourteen of the nineteen provinces of China; in the island of Yesso in Japan; in odd spots in India, Thibet and in the islands of Ceylon and Borneo; in Abyssinia, Kordofan and the Soudan generally in North Africa, and the region watered by the Zambesi and Limpopo in South Africa; in Australia, New Zealand and Canada. But as a general rule the precious metal is found in such small quantities that it will not pay to work the mines or placers. It is only now and then that it occurs in isolated localities in abundance.

That there were such epochs of gold discovery in ancient history it is impossible to doubt, though transportation was so difficult in those days that rushes of gold-seekers to the diggings must have been limited. It is hardly to be supposed that the vast quantities of gold which were in existence in Judea, at Babylon, in India, in Persia and in Egypt were gradually accumulated by the working of lean sands; the bulk must have been the yield of discoveries of rich deposits. Gold figures as an article of exchange and merchandise as far back as the time of Abraham, and when Solomon came to the throne he fairly plastered the temple with gold. He had plenty of it. The king of Tyre sent him at one time 120 talents —say, $250,000—in gold; his friend, the queen of Sheba, sent him $200,000; from Ophir he received $500,000, and in one year he received $750,000 from all sources. There could have been no scarcity of the precious metal at his court.

Nor could it have been rare in other parts of Asia. At Babylon, where, in the time of Belshazzar, they had gods of gold, and gold vessels for every guest of the king to drink out of, or in Persia, where the king had beds of gold and goblets of gold; or in Hindostan, where the

king sat on a throne of gold, and Nadir Shah took a hundred millions of gold from the single city of Delhi. It was safe to infer that before these great masses of gold were gathered together there must have been startling discoveries of gold deposits somewhere, causing rushes of gold-seekers to the new camps, just like the present rush to Klondike; and, considering the undeveloped condition of the mining industry at that time, it may also be inferred that the gold found was always alluvial.

Where it was found there are no means of knowing. There are no records of gold discoveries in the ancient books. In the Jewish chronicle Ophir is frequently mentioned as the source of the gold supply. Where was Ophir?

Josephus thought it was in India; Niebuhr believed it was in Arabia, but the better opinion to-day is that it was in South Africa, in the very country where gold is now being extracted from the metamorphic reefs. No one can affirm that gold did not come from other places as well. But the vestiges of ancient mining on the Rand in the Transvaal prove that the industry was carried on there in very remote times; and it may be conjectured, without straining credulity, that at some period in the age of the early Pharaohs the news came to Egypt that the precious metal was to be found in the rocks in the valleys of the South African rivers, and all the Egyptians who were out of a job, and all who were discontented, and all who were in debt took ship at Clysma for the El Dorado of the south.

How much gold the world contained in the old historic times no one knows. In poor countries, such as Europe north of the states on the Mediterranean, there was probably little. Brennus demanded as ransom for Rome 1,000 pounds of gold; it was probably all the city contained.

Egypt was a rich country, and the women generally owned jewels of gold, which the Jewesses borrowed of them, and which Aaron melted into the calf that Moses ground up in his rage. But in those early times most of the gold that was mined must have fallen into the hands of the monarchs of the day. The common people could have had little of it. In Greece every man could mint his own metal, but if his coins were under weight his life was forfeit. The issues of such mints must have been small. No gold coins were in general circulation at Rome till the days of Julius Caesar. In the middle ages a baron may have had a chain from which he twisted a link or two when he desired to reward a follower, and his wife may have had a gold pin, but there was no gold in general circulation. Even at the time of the discovery of America the entire metallic circulation of England was less than the banks of San Francisco hold to-day.

The first rush of gold-seekers to a land of promise took place from Spain to the countries discovered by Columbus. On the islands he visited and those portions of the continent on which he landed there are and were then no gold mines. But the natives he met wore ornaments of gold obtained mostly from South America, and Cortez found a good deal of it, though neither he nor his people undertook to mine. When Montezuma surrendered, the treasure in gold which fell to the share of the conquerors amounted to 162,000 pieces of eight, equivalent, according to Mr. Prescott, to $6,300,000, a small sum if contrasted with the yield of modern mining camps, but more, perhaps, than the contents of the coffers of any European monarch of that day, and quite enough to disturb values throughout the world.

It was less than the sum secured a few years later by Pizarro in Peru. At Cuzco he divided among his men

580,200 pieces of eight, and the ineffectual ransom of Adahualpa cost the unfortunate Inca a sum exceeding $15,000,000 of our money. The Spanish army in Peru received and sent home four times as much as the followers of Cortez sent from Mexico. It is diverting to observe how the ill-gotten gains operated precisely as the discovery of a bonanza does in a mining camp. The chronicler says: "Every article rose in value. A quire of paper sold for ten pieces of eight, a bottle of wine for sixty, a sword for forty or fifty, a cloak for a hundred, a pair of shoes for thirty or forty, and a horse for twenty-five hundred." A piece of eight was equivalent to an ounce of gold.

It is assumed that Spain drew from her American possessions in the first half of the sixteenth century $40,000,000 of gold, the estimate will be liberal; but it was enough to revolutionize commerce throughout the world and to lead Spain to adopt the policy which crippled her energies, stifled her intellect, and reduced her in three centuries to such a condition of decrepitude that she became the laughing stock of the nations. In the meantime, however, her best blood flowed across the ocean to America and founded nations which promise to outstrip the mother country in the true elements of greatness.

From the spoliation of the South and Central American countries in the first half of the sixteenth century to the middle of the nineteenth there was no startling discovery of gold anywhere. The world's stock kept steady, the loss from abrasion and accident being just about balanced by the production of the working mines.

CHAPTER XXXIV.

WOMEN IN THE KLONDIKE COUNTRY.

MANY WOMEN TOO have caught the Klondike fever. The female population of the upper Yukon district will be increased by at least 150 highly respectable, and in some instances, well-known women in society. Many of these female prospectors, however, left shops, stores and typewriting machines to seek for fortune, and possibly find a husband, somewhere within 100 miles of the Arctic circle.

The Klondike, however, has not been destitute of women by any means. The first woman to reach there was Mrs. Thomas Lippy, who is now in San Francisco, she and her husband having said good-by to the Klondike for a year. Mrs. Lippy and her husband have not trodden the primrose path to any great extent, and, therefore, the sudden competence which has come to them through Mr. Lippy's good fortune on El Dorado creek finds them rather ignorant of the ways of enjoying life that accrue to the possession of money.

When Mrs. Lippy was in the Klondike, near Dawson City, at first there were no members of her sex in that section of the world at all with the exception of a few Indian squaws. The Lippy camp was on what is called El Dorado creek, a tributary of the Klondike. Until the log cabin—which, by the way, was the first one in the place—was built, the hardy couple lived in a tent. All the furniture they had was made by Mr. Lippy, and their

only food was that which was canned. Mrs. Lippy did no mining herself, but attended to the camp and made her husband so comfortable and enabled him to rest so thoroughly that he accomplished far more than falls to the average lot of the miner.

After awhile another woman came into the country, Mrs. Clarence Berry, who has been credited with being the first white woman in the Klondike regions. There was a tinge of romance about Mrs. Berry's advent to the gold fields, for when she and her husband started they were just married. The Klondike trip was their honeymoon journey. They had no money to speak of, but when they came to El Dorado they camped about a mile from the Lippy camp, and then they both pitched in with the determination that they would get rich.

Mr. Berry mined and Mrs. Berry carried pans of pay dirt to the cabin and washed it there. She is credited with having washed out $6,000 worth of gold. As a result of the labors of this couple a snug fortune of $135,000 has been accumulated and all in less than six months' time. These two incidents are the ones that have stirred the feminine heart.

It must not be thought that it is only San Francisco or California women who have the fever, for women have actually gone there from the east in the hope of being able in some manner to attach themselves to Klondike expeditions in any capacity whatever, as long as it was respectable. They seem to think that if only they can once reach this Mecca of fortune seekers all will be well with them ever afterward.

It is by no means an impossibility for a woman to visit the Klondike. She must, however, go prepared both for the journey and the residence there. Of course she should go with a husband, brother or father, if pos-

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sible; otherwise she would have to have all the outfit he possesses in the way of transportation facilities and provisions. Outside the camping outfit and the food, careful inquiry among the women who have returned from the Klondike region shows that the following should be required:

One medicine case, filled on the advice of a good physician; two pairs of extra heavy, all-wool blankets; one small pillow; one fur robe; one warm shawl; one fur coat, easy fitting; three warm woolen dresses with comfortable bodices and skirts knee length, flannel lined preferable; three pairs of knickers or bloomers to match the dresses; three suits of heavy all-wool underwear; three warm flannel night dresses; four pairs of knitted woolen stockings; one pair of rubber boots; three gingham aprons that reach from neck to knees; small roll of flannel for insoles, wrapping the feet, and bandages; a sewing kit; such toilet articles as are absolutely necessary, including some skin unguent to protect the face from the icy cold; two light blouses or shirt waists for summer wear; one oilskin blanket to wrap her effects in, to be secured at Juneau or St. Michael; one fur cape; two pairs of fur gloves; two pairs of fur seal moccasins; two pairs of "mucluc" —wet-weather moccasins.

She wears what she pleases en route to Juneau or St. Michael, and when she makes her start for the diggings she lays aside every civilized traveling garb, including shoes and corsets, until she comes out. Instead of carrying the fur robe, fur coat and rubber boots along, they may be purchased on entering Alaska, but the experienced ones advise that they be taken along. The natives make a fur coat with hood attached called a "parka," but it is clumsy for a white woman to wear who has been accustomed to fitted garments. Leggings and shoes are

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not so safe nor desirable as the moccasins. A trunk is not the thing to transport baggage in. It is much better in a pack, with the oil skin cover well tied on. The things to add that are useful, but not absolutely necessary, are chocolate, coffee and the smaller light luxuries.

When a woman reaches the Klondike, always provided she has all the things that are necessary, she will find a region that is, as a rule, as inhospitable as Tierra del Fuego. To reach there she has encountered, if she has come over the land route from Juneau, any amount of privation and very little pleasure. If her journey has been by water, then she knows what it is to be week after week subjected to the crowded accommodations of an ill-fitted passenger boat. Anything will seem pleasant after that water journey, and therefore it is probable that whether her trip has been by land or sea, she will be glad enough when she reaches a stopping place that is permanent.

Another astonishing case, something of which has already been published, is that of Mrs. J. T. Willis of Tacoma.

In the spring of 1897 Mrs. Willis was poor. To-day she is worth a quarter of a million, and all on account of the Klondike. Two years ago Mrs. Willis, whose husband is a blacksmith, and a great sufferer from rheumatism, decided to try her luck among the gold fields of the frozen north. She set out alone, and vowed that she would not return until she could bring a fortune with her. She has kept her word.

After two years of prospecting, and just when her spirit and her fortune were at the lowest ebb, there came a report to Circle City of a big placer strike on the Klondike. Joining a party of cattlemen, Mrs. Willis

hurried to the new El Dorado, staked a claim, and so she expects more than $300,000 from it.

Not satisfied with this, however, she established a laundry at Dawson City, and was the first to introduce the "boiled shirt" among the miners. It made a great hit, and notwithstanding the fact that Mrs. Willis was compelled to pay $250 for a box of starch, her enterprise prospered greatly. An Indian squaw, who works in the laundry, receives $4 a day and expenses, and the log cabin in which the work is done rents for $35 a month. Wood for fuel costs nearly $500 a year.

Before the turn of fortune's wheel made Mrs. Willis wealthy she worked as cook for the mess of the Alaska Commercial company at Dawson City.

Efforts have been made to steal the woman's claim, but to a friend, Mrs. Frank P. Hicks, she writes:

"I have gone through death, and a fight is now being made to take possession of my claim, but I will stand by my right, if it takes five years."

It is estimated by those who have kept track of the matter that at least 150 women of thorough respectability are now on their way to the Klondike, and, unfortunate as it may be, will have to stand the privations that seem positively assured to the population of the Klondike the coming winter.

Among the women who are now on their way to the Klondike country is Mrs. Eli Gage, wife of the son of Lyman J. Gage, secretary of the treasury. She goes to meet her husband, who is an official of the North American Transportation and Trading company, and who is in Dawson City. Another Chicago woman, Mrs. W. A. Little, bought a snap-shot camera and telegraphed for dogs and a sled, and started for the Klondike, leaving a very comfortable home near Lincoln park. She is a

slender, delicate little Kentuckian, and says she will stay just as long as she feels like it.

Mrs. M. L. D. Keiser and her pretty niece, Miss Georgia Osborne, both of Jacksonville, Ill., bought their clothing outfit in Chicago and started for the Chilkoot pass. Their outfit consisted of the thickest of woolen hosiery and gloves, leggings and furs, fur hoods, canvas sleeping bags, lined with sheepskin, sweaters and several suits of the heaviest woolen goods obtainable. Both will wear skirts as short as a modest bicycle dress. Mrs. Keiser boldly said, just before leaving, that she was going to the Klondike to stake a claim and make a strike and she expected to return rich.

One of the first women to leave for the gold country from the northwest started out with the definite purpose to open a restaurant at Dawson City. This was Mrs. Bessie Thomas of Seattle, and she started off alone. She believes that a woman who has her living to make stands just as good a chance in a mining town as a man.

Two prominent Catholic sisters arrived recently in San Francisco from Massachusetts on their way to Alaska, where they will establish a convent of the order of St. Ann, an extensive Canadian organization founded by Bishop Bourget in 1848.

The sisters who thus left their Massachusetts home and offered their services in the far north are known as Sister Mary Magdalen of the Sacred Heart and Sister Mary of the Cross. In an interview in San Francisco, at the home of the Sisters of the Family of Holy Names, one of the sisters said of the contemplated trip and the work in Alaska:

"We are going largely as pioneers, for the Alaskan work is new to us. The founder of this work was Sister

Mary Stephen, who has been in the far north for many years. We are establishing the fifth home and school of this character in Alaska, and our headquarters will be at St. Michael. We shall open a school for white children exclusively, and the white children from other missions will be brought to our school, for the purpose is to separate all the whites from the Indians. I have had a great deal of experience in teaching, though not among Alaskans, but children are about the same the world over. Where I taught last year we had 1,200 children in the parochial school. My companion does not speak very much English, as she is French. While I am Irish I speak French, and we get along all right.

"We do not expect to find any gold nuggets there, but we hope to win some souls to Christian life and do some good to our fellow beings. I wrote to the mother provincial that we were glad to come into the country and be of whatever service we could to the cause. From what I hear, I believe the Jesuits will soon seek aid for the establishment of proper hospitals in the Klondike country. There is considerable sickness up there, and there are many accidents among the miners. It is probable that sisters from the far north will come to the Klondike hospitals, because, as they are inured to the climate, they can do the work with far less risk than would be incurred by sisters coming from a temperate region. You may feel sure that as soon as there is need of extra hospital facilities, some of the Catholic orders will be on the ground and establish what is needed.

"We have made ample provision in advance for the clothing and other supplies we will need temporarily in the new field of work. As our people have had many years of experience up that way, we were fully informed of our needs. We think there is a fine field for useful-

ness up there, and we were curious to see the country also. You see, no one in our position is forced to go to any such service. Such matters are always left to choice."

Among the women who are laying plans to go to the Klondike next spring is Kuehne Beveridge, the granddaughter of Ex-Governor Beveridge of Illinois. Miss Beveridge has more or less reputation as a sculptress, with a studio in New York. She is going to renounce art, temporarily at least, to seek a material fortune in the Klondike. Another would-be Klondiker is Miss Pauline Kellogg of Chicago, the daughter of the late Judge William Kellogg, a Colorado pioneer and miner. As a child she lived in a little Rocky mountain cabin near his claim, and knows something of the rough and ready life of a miner. She intends to stake out a claim, build a cabin and pan her own gold.

In 1896 Miss Anna Fulcomer, a graduate of the University of Chicago, went to the Yukon country to take charge of the government school at Circle City. A letter recently received in Chicago from her tells something of the life of a self-supporting woman in that land of the midnight sun. Miss Fulcomer, under date of May 24, 1897, writes as follows:

"Spring has really come at last, and the weather is all that could be desired. No mosquitoes yet, for a wonder, though they are hourly expected—oh, I did catch one in my room three days ago, and he was simply a monster—nearly an inch long. I could not believe my eyes at first, but the fact was forced upon my understanding.

"The first week in May we had a baby blizzard. It snowed steadily for three days and nights. More fell than at any other time all winter. It was not colder than

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zero. The snow has been melting slowly for two weeks, and it is wretched getting around. I wade through slush and mud, going to school, above my ankles.

"I wear native boots, 'mazinkas,' from Siberia, like those models you folk have, only the sole is seal flipper. They are much better than rubber boots, as they do not draw the feet, and are not cut up by snags and roots of bushes, which cover the ground here.

"Last Sunday we had our first rain, a good, steady downpour for three hours. It will take snow away fast. We have had no darkness at all since some time before May 1. I went to a party that evening, came home at 12:30 a. m., and it was just as light as it is on a cloudy day. The sky was clear, overspread by a soft blue tint, and the air was delightfully fresh. Just think, nearly four months of continuous daylight!

"The Yukon has at last broken, but it was not such a great sight as it previously has been. The winter has been milder than usual, so the thin ice has been worn much thinner by the more rapid current. Sunday afternoon, May 16, it started. Everybody ran to the bank, expecting to stand there for hours, perhaps all night, if it kept on raining and the 'jam' came. It must be grand when the ordinary 'jam' does come, for the thick ice floes are piled up on one another almost mountain high, and the water rises, overflowing islands and the low banks. But this year the water did not rise, and the ice did not pile up, but remained quiet after it first broke. For four days, though, we could often hear it rushing through the other channel away off beyond the island. In fact, some people were getting scared, and feared that Circle City was left stranded high and dry, while the river had made a new channel for itself, as often happens, miles away. But on May 21 the ice slowly drifted

out from here, water fell a trifle, and the old-timers thought it was jamming up above and would soon break and finally rush down, when lo! and behold, at 4 p. m. there drifted in upon us a rowboat from Klondike.

"The Indians have been making canoes, nets, tents, clothing, and all else, and are starting out on their summer fishing trips. The steamer Bella came up to-day from Fort Yukon, where she wintered, and starts tomorrow for Klondike, taking along almost everybody left in town, whites and Indians.

"There will be no one left in Circle City for the summer but three white women, six white men and a few Indians. Whether there will be any more next fall and winter I know not. Circle City is dead—dead as a door post—while six short months ago I cannot conceive how any place could be livelier, with 1,500 whites, a theater, two dance houses, public library and reading room, stores, tinshops, blacksmith shops, photograph gallery, etc., etc. The Birch creek mines are as good as ever, but they are simply nothing compared with Klondike—Klondike, the richest diggings found on earth.

"I spent $75 on my man (a prospector, whom she outfitted) and he has struck nothing yet. He has three months left to prospect yet, but I do not expect anything now. Other men who went up about the same time he did have already washed out all the way from $1,000 to $500,000. I am not alone. One man spent $240 as I did, and has nothing yet. Everybody thought that my man would do splendidly, as he is an expert—but it is simply luck or chance.

"During the past week about fifty men have drifted down in boats—after provisions, clothing, etc.—and the accounts they bring down are startling, almost incredible, but nevertheless true. It simply cannot be exaggerated.

When one man takes out $200 every three hours—when men pay $40,000 and $50,000 to be paid on bed rock (i. e., as it is taken out of the ground), and wash out $75,000 in three months—when the ground averages from $1,000 to $2,000 per foot, and the claims are 500 feet long; when, after over six months of constant working and digging the grounds seem to increase instead of diminish in richness, do you wonder that I am half wild? 'So near and yet so far.' If I were only a man that I could get out and dig—regular wages of $15 per day is better than $1,200 per year."

CHAPTER XXXV.

NELS SORENSEN'S DIARY.

DIARIES of Klondikers are scarce. Few of those who made the trip through the Chilkoot pass to Dawson City took the time to jot down daily the details of the journey. Nels Sorensen, a motorman on a San Francisco street car line, arrived at Dyea March 31, and arrived in Dawson City June 10. He kept a diary and his graphic though simple account of his adventures is as valuable as it is interesting. It should be carefully read by want-to-be Klondikers. This is Nels Sorensen's diary:

March 31.—Anchored off Dyea at 2 p. m., two miles from the place, it being low tide. Small boats were lowered and unloading commenced. We had to carry our freight—3,200 pounds—anywhere from a quarter to one and a half miles. Work? Don't mention it.

April 1.—Pitched our first camp. Came very near being flooded out by melting snow.

April 2.—Steamer "Mexico" in a hurry to get away. Commence piling stuff on rocks anywhere opposite steamer. We were lucky to get all our packages out of the confusion the second day, but our two packages of sleighs filled with tinware and all our tools were on the rocks. We hired Indians and canoes to get them. Cost

$4. However, two other men came in the same boat with us and they paid half.

April 3.—Commence sleighing to our next camp three miles away. Weather very soft and mild for Alaska. Snow very slushy in places and shallow creeks have to be forded by dragging sled across on rocks.

April 4.—We finished moving this day, and took one load to mouth of canyon. Trail soft and slushy, otherwise easy grades.

April 5.—Moved camp to mouth of canyon. A great camp assembled there, which is the beginning of a terribly hard pull through the canyon to Pleasant camp, two and a half miles.

April 6.—Took first load through to-night. Trail is bad and soft, and very heavy grade.

April 7.—Took two loads through to-day; hard work.

April 8.—Took each one load through. In the afternoon we hired two Indians (they use dogs). They took two loads, 550 pounds, to Sheep camp, one and one-half miles past Pleasant camp. We followed the camp outfit and baggage and pitched camp in Sheep camp. Here is a city of tents, as this is the last camping place this side of the summit. We stay here until everything is over.

April 9.—Pulled rest of outfit from Pleasant camp to this place.

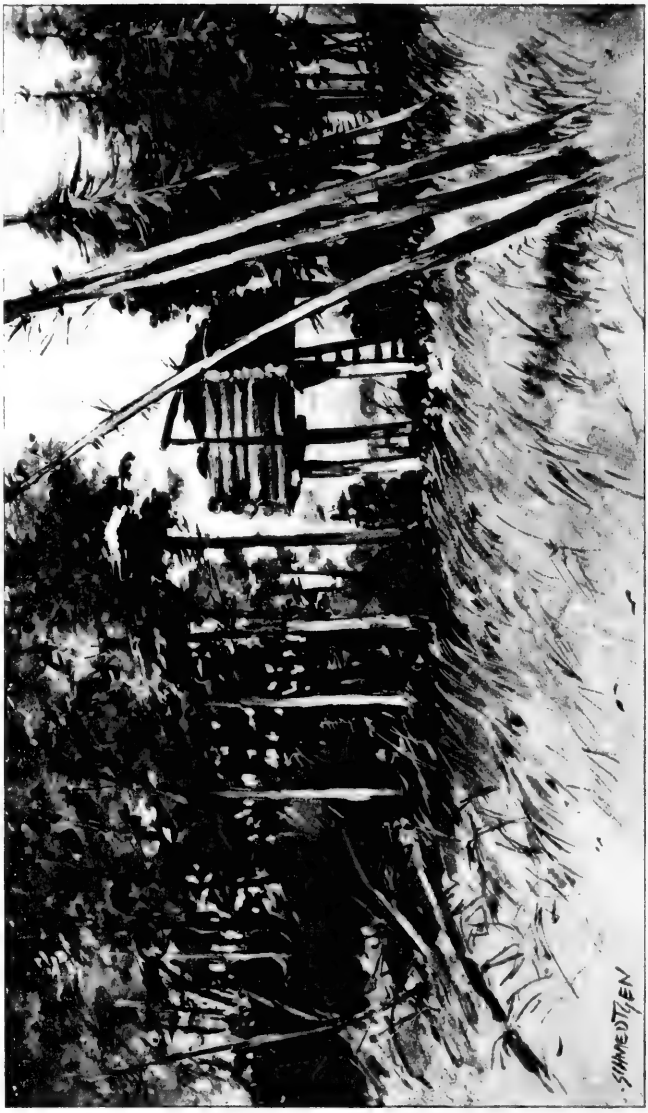
April 10.—Took each two loads of 100 pounds up to the foot of summit. This is far worse than canyon, almost one continual steep grade for four miles. If there are any people back home who think it will be a fine pleasure trip to go through Alaska canyons and mountains and depend upon themselves for subsistence—well, I say, "let them try it."

April 11.—This we figure out to be Sunday, though

it is hard to keep track of either dates or days. I am not writing these notes daily. It has been mostly work since we started, but to-day we are resting and keeping the fire going. Henry and I are talking of having some of our stuff packed for us to the top of the summit. It will come high. Kall thinks that by slow work we will be able to get it up ourselves. We will see to-morrow. I am doing most of the cooking so far. I can make pretty good biscuit and pork and mush and rice go all right. Beans we scarcely had time to wait for as yet, though we have tried them.

April 25.—Started at 11 a. m. from Stone house with camp outfit for summit. Packed up two trips, hired an Indian for two trips. When up we loaded sleighs so that each of us had about 350 pounds, and started for Lake Lindeman. Left summit at 4 p. m. with good down grade. A little further on there is a steep grade. We tied down our ropes and ran the sleds down alone. They go lickety-split down into Crater lake, one-quarter of a mile from summit. Quite a novel sight. Occasionally one would tip over and tumble all over itself. Now the trail is on the level, about two miles. Then come some bad ups and downs for a mile and a half. Then it is nearly level to head of canyon, eight miles from summit. As we had a late start we were compelled to pitch camp, and crawl in, five miles away. It being so late we could not distinguish the trail. This was at 10:30 p. m.

April 26.—Went to summit for rest of outfit. A heavy load, 560 pounds each, with which we bid stormy old Chilkoot pass a final farewell. Arriving at camp, we unloaded and took camp outfit, same as night before, intending to move to Lake Lindeman. The canyon is a terrible rough and steep trail. At 11:30 o'clock we



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pitched camp three-quarters of a mile from the lake. A more tired set of men it would be hard to find. After a hurried supper we felt like lying down.

April 27.—As we were late that night, we did not make a very early start. Starting for load from pile we got through canyon, but at head of same we found it too stormy to proceed. High winds and snow drifting, making trail very heavy. Here we placed our sleighs and went back to camp, taking a much-needed rest. At the present moment I am cooking beans. Have baked two pans of bread. Talk about eating! Why, we could sometimes eat leather straps or rubber gloves. One thing we talk of and are thankful for, is that water in the canyon is now running the same way as ourselves. West of the mountains it was quite the other way.

April 28.—Went up canyon, got our sleighs and rest of outfit from five miles north of summit. We unloaded half at head of canyon and took rest to camp. Went back after last load, so for the first time since Sheep camp we have camp and outfit together at one place.

April 29.—To-day we took two loads to head of Lake Lindeman. Spent rest of day in rigging up sleighs with mast for sailing, not in water, but on good level trail. When wind is favorable sails are a great help.

April 30.—Moved camp to head of Lake Bennett. At foot of Lake Lindeman we unloaded half of load to be able to pull through a three-quarter-mile rough trail to Bennett. Went back after rest. This was our camp outfit.

May 1.—(One month from Dyea.) Went to head of Lake Lindeman for all of stuff, 560 pounds. We proceeded with sails set and good trail. A brisk wind blowing astern sent us along with good speed. At times we

were taking a seat on sleigh; a great lift. We unloaded half at foot of Lake Lindeman and took the rest to camp.

May 2.—Got up early, ate breakfast and went after last load. Trail good mornings while snow is frozen. We expected to move our entire outfit about noon, but weather has been calm all day. Here men usually wait for wind, and quite a number stay here to build their boats.

May 3.—We left camp at head of Lake Bennett about 2 p. m., having waited for a wind to spring up. With entire outfit, about 850 pounds each, a heavy load. As we had only a very slight breeze and trail soft, pitched camp four miles down.

May 4.—Left camp with outfit at 5 a. m. on a good frozen trail, and a fair wind. Made about twelve miles up to 11:30. Pitched camp here, as the sun makes the trail heavy. In passing islands ten miles from head, we struck open water for 200 feet; had to portage stuff around and then proceed again.

May 5.—We took things easy rest of day.

May 6.—We were looking around for timber and found fair wood for boat building, so concluded to stay here and chop down some trees.

May 7.—We got sawpit in shape and log on same. Sawed off two slabs and four boards. Henry will be the builder.

May 8.—We made another log look sick to-day. Got out five boards and four rib strips.

May 9.—We worked a little during the forenoon. Rain set in about noon; lay off. All well, hearty and a keen appetite.

May 11.—Fine day; doing some work. Lake is now showing signs of breaking up. We think that we will have boat built in good time for open water.

May 12.—Whipsawed some lumber. Hard work, but will soon have enough. Henry is working on boat. It is framed for 22½ feet at bottom and 24½ top, sharp at both ends. Will not be a beauty, but will take us safely down. Henry says her name will be "Ave Maria." Quite appropriate.

May 13.—Got out a few boards. All is well.

May 14.—Whipsawed this morning. This afternoon I have done some washing and cooking. H. and K. worked on boat. We have a good camp here, high and dry at edge of woods, near edge of lake. Shipyard is here close to tent, and our grub pile is down near water on gravel beach.

May 15.—Boat building. All well, as usual. Weather is fine.

May 17.—Sawed our last log to-day. Glad of it.

May 18.—Boat building. Lake is now getting very rotten.

May 19.—Considering our poor quality of timber, I think we will have a pretty fair and safe boat.

May 20.—All well and hearty. Lake is on a tear this p. m. Ice all went out past this place before a brisk wind.

May 21.—Calking our boat.

May 22.—Finished calking and pitching to-day. Six boats came down past here during day.

May 23.—Doing the last trimming work on boat. All well.

May 24.—Ready to leave, but swells on beach are so heavy, being unable to launch and load.

May 25.—Water is still rough for getting away from shore.

May 26.—Started to-day, three weeks from time we ar-

rived here. We set up no sail, but drifted down to Caribou crossing, foot of Lake Bennett, as far as we could reach for ice. We made fair time. This was the easiest move we have made so far. Boat behaved well and did not leak much. Quite a fleet of boats are here waiting.

May 27.—We broke camp this morning, and started through slushy ice. But half a mile away we were compelled to go ashore, drift ice being too heavy. Slush cleared out and down this afternoon, so again we pulled up stakes at 7 p. m. No wind, but a good current part way. By help of oars we made about ten miles down to near Windy arm, on Tagish lake. Here we camped at 11:30 o'clock. All well; beautiful weather. Nights are short this time (and will be shorter); we can read at all times, providing we have anything to read.

May 28.—Moved again this morning, about three miles to Windy arm. Rather slow time. Weather calm. At Windy arm and island of Rock are some dry moss and dry grass; inhabited by seagulls. We stopped a few minutes and found ten gull eggs. Then we found that Windy arm was about to prove its title. She began to blow; water rough. We set half sail, and "Ave Maria" fairly flew. We were much elated at the fine showing she made going about three miles. Wind having changed to north, we put into a cove and ate lunch. Starting after lunch, we found no improvement in wind. We used oars for two miles, and all well; splendid weather.

May 29.—Made a good run to-day, about twenty miles. First to foot of Lake Tagish, then five miles through river and about eight miles down Lake Marsh. We had fair wind for sails for about twelve miles until we were stopped by ice. A great many Yukoners are now caught up with us. I should judge that 300 men

with their boats are now on this lake waiting for ice to clear away. Splendid hunting and fishing here. We caught two five-pounders coming down. Had one for supper, a treat, being the first fresh meat since steamer "Mexico." I fired four times at ducks, but failed. We sleep on boat to-night, being too marshy to land and make good camp.

May 30.—Lying around waiting for the shifting ice to move downward. At noon we pulled out and made two miles to Ice camp.

May 31.—This was our best record day for distance covered. We made foot of Marsh lake and about twenty miles downward toward Grand canyon. Good wind for sailing. Made about thirty miles.

June 1.—Two months out from Dyea. This has been the most exciting, at same time interesting, day of our trip. We started on the five miles remaining of river. Reached mouth of canyon about 10 a. m. Very rocky current toward the mouth, but a small eddy, cove, gave us reasonably good landing. We then went around to take observations of work to be done. We previously agreed that only one of the family should make the trip, and Henry wanted to go through, and being the best steersman, he and Kall took her through. There is a fifteen or twenty-mile current, and some 500 feet very tumbling and rough. They came through in fine shape with nearly all of our stuff, our personal effects and a very little food being all left for packing around three-quarters of a mile. After lunch we started for head of White Horse rapids, two miles away. A very strong current running. Bump! We were on the rock, but rode off with no damage. Very dangerous drifting, as rocks cannot be seen. Bump! Another rock. "Ave

Maria" stops suddenly on top of a great boulder, careening some to one side. The current being so strong, she turned completely around, but luckily it is a great, smooth, rounding rock. I stepped out on it, and we shoved the boat off. No apparent damage. We were on a few more rocks and gravel bars, the same as all boats passing down. Two miles below canyon is White Horse rapids, a dirty piece of water. We landed safely half a mile above the rapids. From here we roped around for a cove a quarter of a mile. Roping was done by men walking on shore with long ropes, and one or two men in boat poling, keeping boat clear of rocks and shore. Here in this cove we unloaded most of the stuff and camped for the night. All well.

June 2.—This morning we packed most of our goods down below rapids, about three-fourths of a mile. After lunch we doubled up with another party to get both boats down the rapids. Down all right. We pulled boat up on a bank of snow and ice, and dragged it over below rapids, about 300 feet. From there we again roped boat down to stuff, loaded up and away. About one mile below rapids we struck shallow water. Stuck on a gravel bar. With a few minutes' shoving we were again afloat. Went down four or five miles and camped for night. Very glad that our goods and boat went safely through experiences of last two days without either loss or damage, either personal or otherwise. The accidents which some parties met with were four, so far as I know. One large scow struck walls of canyon, smashed in one end. She sank just below canyon in three feet of water. They had also two horses aboard. Everything damaged and spoiled. Another scow struck, but her upper part; no damage to stuff. The people in one large scow thought

they would shoot the rapids rather than packing around. Came to grief by running on rocks; stove in some plank; filled and beached. Damaged goods the result. A man and his wife lost all by a boat getting away from them near rapids.

June 3.—Beautiful morning, but no wind. We are floating down the Lewes river. To-day we have made the head of Lake Le Barge and two miles down same.

June 4.—Started with oars, there being no wind. Slow progress, yet we made about twenty-four miles, and camped for the night. Very fine scenery along this lake, mostly marble and limestone.

June 5.—Started at 7 a. m. for foot of lake with a good wind. Making good progress. Entered river at 9 a. m. Piece of river for twenty-five miles is very rocky and dangerous. Kept our nerves strung the entire day. After day of dodging rocks, drifting at rate of seven miles an hour, we were glad to camp about four miles below Hootalinqua river. Most dangerous waters are now passed. Millions of mosquitoes, and they are very hungry. We made nearly forty miles to-day; all well.

June 6.—Broke camp and started with a good three or four-mile current. We are now well on the way into the promised land. Made about twenty-one miles to Cassiar bar. There we decided to stay rest of day. It has been said that gold has been worked out here. We tried for it some time. Each of us found particles of gold, but so small we could not save it.

June 7.—Left Cassiar bar 5:30, floating with a good current. The country along this river is low and swampy. Mosquitoes are now the terror of our lives. A man came to our camp last evening after we were to bed; asked if we had seen any part of outfitting stuff coming

down. He had drifted sideways on a rock and smashed. Lost everything, save one sack of flour and one of groceries. Hard luck. This happened near Hootalinqua river. We made some miscalculations in regard to distance traveled the day we went through bare piece of river from Le Barge. Think we made about seventy miles that day and passed Hootalinqua without seeing it. To-day we passed Little Salmon river and went through Five Finger rapids and Rink rapids. With difficulty we made landing and camped at 11 p. m., with eighty-five miles to our credit for the day. We will have no more bad waters; smooth, swift sailing. Mosquitoes fairly suffocating us; make camp and eating miserable. Weather is getting warm. An old gentleman on steamer "Mexico" said: "A man will earn every dollar he gets in the Yukon." I believe him. All well, and looking ahead to more comfortable circumstances, though there will be no disappointment if we come back with nothing more than health and expenses clear.

June 8.—Up and away from the swarms of mosquitoes. A number stayed with the boat. I cooked breakfast on board. Going down a good six-mile current. We have made a forty-five-mile run to-day to Pelly river and old Fort Selkirk. Here are quite a number of log houses and a trading post. The Pelly and Lewes rivers from the Yukon at this point, so we are now on the Upper Yukon.

June 9.—This has been our banner day for covering distance. We have made from Pelly river to five miles below White river, 101 miles. We are nearing our destination. All well.

June 10.—Started at 6:45 a. m. Passed Stewart river in an hour; reached Sixty-Mile post at 12:30. We are not making as good time to-day. We have head winds.

At Dawson City we will probably split up partnership. Kall desires to go up Klondike, while Henry and I think of going up Stewart river. We arrived at Dawson City 8 p. m., seventy-five miles for the day.

June 11.—An immense crowd of men and boats were here. They tell us that the Klondike creeks are very rich. Kall went to work to help build a log house this morning, $10 a day. Henry and I are dividing up stuff, preparing to start up Klondike.

CHAPTER XXXVI.

PREPARING FOR THE SPRING RUSH.

HUNDREDS OF MEN were just too late this year to secure passage on the last boats to leave the Pacific seaports for Dyea or St. Michael. These men have declared they will be on the ground bright and early next spring prepared to rush to the gold diggings. Back of these men are thousands of others in this country, who, for one reason or another, were unable even to lay out a feasible plan for going to the Klondike district this year. They too have their eyes fixed on the spring days of 1898. Every indication points to a tremendous immigration to the Upper Yukon basin next year. The first boat that will carry gold-seekers to St. Michael, there to be transferred to the Yukon river craft, will sail from the Pacific coast ports somewhere about June 1, 1898. Boats will be leaving for Juneau and Dyea, Wrangel and other points, where an overland journey to the gold diggings may begin, all winter long, but every effort will be made by government officials and influential men to hold back the tide of immigration until spring opens good and strong. It is said that a man may begin a trip over the "Back-Door" route by March 1, but this statement is modified by the assertion that a man would be several kinds of a fool to start then.

If all the plans that are on paper and in the minds of energetic men are carried out, a gold-seeker will have a comparatively easy task in reaching the Upper Yukon

PACK HORSES TO THE PASS.

district in a year or so. Railroads and wagon roads, river boat lines, narrow-gauge roads, etc., are being projected to cover pretty nearly every route that looks in any way practical. Here are some of the railroad projects which have been inspired by the rush of gold-seekers.

It is proposed to build a railroad from Skagway to the Upper Hootalinqua river, and it is said that work will begin on the construction next year, for the survey has been made. The money for this enterprise is to be furnished, it is said, by a syndicate of Canadian capitalists. This project is several years old. It was first brought out when the gold strike was made on Forty Mile, but the Klondike furore apparently has given it new life. The engineer who made the survey has this to say regarding the enterprise:

"The journey from Dyea to Dawson City will be a part rail line and part river, steamers plying up the Yukon river above Dawson City. The route will be much different from that now in use, being by way of Lakes Tagish and Atlin and the Hootalinqua river, avoiding the White Horse rapids and the dangers of Miles canyon, where now portages of from one to three miles have to be made and where many a miner has been wrecked.

"The route for the new road, as surveyed and laid out, runs from Skagway bay, across the new White trail to the upper arm of Lake Tagish. Here a transfer to lake steamers is to be made. By steamer the route is across the head of Lake Tagish and through Three-Mile river to Lake Atlin. Across Lake Atlin to its northern extremity is about thirty miles. Here the rail line is resumed for a distance of thirty-one miles to the headwaters of Hootalinqua river.

"Disembarking at Hootalinqua river, passengers and freight will be transferred to river steamers to be operated by the company from Dawson and Forty Mile up the Yukon and Hootalinqua rivers.

"This route is perhaps 75 or 100 miles longer than that at present followed by ingoing miners and gold hunters. The trail over White pass was made as a preliminary to the survey for the new railroad.

"In building the road, the company expects to see the whole of the Upper Yukon basin developed during the next few years. Its promoters believe that the country will produce a large amount of gold in the next half century, and that the discoveries of rich placers will extend to other streams forming the upper end of the Yukon basin. In the territory now unexplored, in which the Klondike has its source, there are great ledges of quartz, and smaller streams rising in the same territory form the head waters of other streams emptying into the Yukon above the Klondike, and therefore are likely to be as productive of rich placers as is the new region."

It is reported on what seems to be good authority that the officials of the Canadian department of the interior are considering the advisability of opening a wagon road from Edmonton to Dawson City. It is said that the distance is between 800 and 900 miles, and that the route to be traveled is through an auriferous country. Those who favor the scheme say that the opening of such a route would greatly reduce the cost of reaching the gold fields, remove a large element of danger, open a way of communication which could be used all winter, and thus enable prospectors and investors to reach or leave the gold country at any time of year. It is reported from Ottawa, Canada, that before a second winter settles over

the Alaska gold fields a wagon road will be established.

It also is reported that the Canadian Pacific will extend the spur line which runs between Calgary and Edmonton to the Athabasca river, a distance of some forty miles, thus doing away with the land portage between Edmonton and Fort McMurray.

Another route which it is said the Canadian government is planning to improve starts from the upper end of Stewart lake, about 500 miles above Ashcroft, the British Columbia mining town. For 160 miles above Ashcroft there is an excellent wagon road, which brings the traveler to the Upper Frazer river and which is navigable for 350 miles for light steamers. On the river route there are said to be one or two bad places, which the Dominion government proposes to fix immediately for steamer travel. Even above Stewart lake a series of waterways are found which can easily be converted into a steamer route. Freight can now be taken as far as the lake for 6 cents a pound. From the lake to Fort Connelly the water route would be through Satcher river, Cross lake, North Tatiah lake and Driftwood river.

A miner well provided with pack-horses need not, so those who have been over the trail say, bother with the rivers and lakes, as the entire distance to the fort can be traveled with ease by pack-train. The beauty of this route, it is claimed, is that no food need be carried for the horses, as there is an abundance of grass the entire distance.

From Fort Connelly the route would be to Telegraph creek over a prairie country with plenty of grass. Although at present there are no trails, it is said none are needed, as there is little danger of going far astray. From Telegraph creek to the Klondike country travel is easy.

J. M. O. Lewis, a civil engineer of Salem, Oregon,

says he can open up, at a small expense, a route from the south of the Copper river by which the Klondike may be reached by a journey of not more than 300 miles from the coast. The route which he proposes will start inland from the mouth of the Copper river, near the Twenty-mile glacier, about twenty-five miles east of the entrance to Prince William sound. He says the Copper river is navigable for small steamers for many miles beyond the mouth of its principal eastern tributary, which is itself navigable for a considerable distance.

From the head of navigation, Mr. Lewis says, either a highway or a railroad could be constructed without great difficulty or very heavy grades, through what the natives call "Low pass," probably the Scoloi pass. From this pass the road would follow the valley of the White river to the point where it empties into the Yukon on the edge of the Klondike fields.

Another project contemplates the building of a narrow gauge railroad from Skagaway bay over the White pass, 62 miles, to the head waters of the Yukon. Here it is proposed to put on steamboats drawing only eight inches of water when light and twenty inches when loaded, to steam down the Yukon to Miles canyon; a line of larger boats to be run from Miles canyon to the mouth of the Yukon, thus making a competitive route by way of St. Michael.

Canadians want to build a railroad from Missanabie on the Canadian Pacific railroad, 675 miles west of Montreal, north to Moose Factory, 250 miles. There it is proposed to put a boat on Moose river to cross Hudson bay to Chesterfield inlet, a distance of about 1,300 miles; to sail into Chesterfield inlet 200 miles; there to build a railroad to Great Slave lake 200 miles, and there to take boats down the Mackenzie river to the Arctic ocean;

build a railroad 50 miles or so to Porcupine river, and then take boats down the Porcupine river to the Yukon. This would require the building of 500 or more miles of railroad.

The Canadian government is obtaining estimates of the cost of building a wagon road, or a narrow gauge railroad, from the head of Lynn canal, over the mountains 80 miles, to the head waters of the Yukon.

A railroad, which according to the opinion of men who are familiar with the country, not only is greatly needed but is eminently feasible, is under consideration by the British Columbia Development company. This company proposes to build a saw-mill at the headwaters of the Yukon, construct boats for sale to miners, and build a narrow gauge railroad, 36 miles long, around the various rapids which are dangerous to navigation.

Another railroad project contemplates the construction of a line, 150 miles long or so, from Telegraph creek to Lake Teslin on what is known as the Stikeen river route. According to the promoters of this enterprise the road will start from Glenora on Telegraph creek, 126 miles from the mouth of the Stikeen river, and follow a newly discovered path to Lake Teslin. From Lake Teslin to Dawson City it is proposed to put on river boats, but no provision seems to have been made to get around the Five Finger rapids. The promoters of this enterprise say that the Canadian government will appropriate a sum of money to blow out the dangerous rocks at this point.

The number of ocean and river transportation companies that have been formed and syndicated run up into the hundreds. In all probabilities there will be several steamboat lines plying the waters of the Yukon from St. Michael to the gold diggings. This will offer

competition to the Alaska Commercial company and the North American Transportation and Trading company, which have, heretofore, virtually held a monopoly on Yukon river business. Both of these established companies intend increasing their river fleets. Orders already have been given for material to be taken to St. Michael, where river boats will be built. Each of these established companies has placed orders with large shipyards for new ocean vessels to run between the Pacific seaports and Juneau, Wrangel, Dyea and St. Michael.

During the rush this summer all sort of craft was pressed into service to carry gold-seekers to the gateways for the overland routes and to St. Michael. Some of the boats used were old, and it is alleged a few of them had been condemned previously by the federal inspectors. As a big rush is expected next spring, capitalists are bending every effort to prepare for it. This means that a large number of vessels will be put into commission in time to handle the early rush.

A chain of banks is to be established in the Alaska country and the various trading posts of one of the transportation and trading companies which has been established in that country for several years. It is the design of the company to receive deposits of gold dust, issue drafts and, in short, carry on all the business of a bank.

Before coming to a definite conclusion regarding a trip to the Klondike the prospective gold-seeker would better drop in and see his life insurance agent.

The general manager of one of the largest New York life insurance companies is quoted as saying: "We decline, for the present, to take any risks upon the lives of persons who are going to the Yukon mining district because the severity of the climate and the privations to which they are likely to be subjected seriously en-

danger human life. Civilization is in such a backward state there that the risk would be too great. There would be no magistrates before whom claims could be adjusted, and if there were, the cost of adjustment would far exceed the amount of many years' premiums on account of the expensive and inferior facilities for travel. After a while, if the country has a sufficient system of local government, railroads, and other methods of regular transportation, and men can be provided with ample food, medical assistance, etc., we will probably do some business there."

Regarding the issuance of accident policies, the general manager of one of the large casualty insurance companies said: "We decline to write any new policies to men who intend to go to the Yukon mining region or to grant permits for any of our policy-holders to go there. The hazard was not contemplated in our original policies. All accident insurance policies exclude accidents happening to the assured persons while they are in 'wild or uncivilized countries,' and we classify the Yukon mining district of Alaska under that clause. Policy-holders are insured against injuries sustained only on regular lines of travel. Alaska is practically an unsettled country, and we have no sufficient insurance statistics to justify us in writing accident insurance policies. Future conditions may justify us, but it seems to be improbable that either the life or accident insurance business will be very large in an arctic region like Alaska. There may be, perhaps, 5,000 or 10,000 persons who will start for the Yukon mining district this year. How many will reach there or how many will return or survive or be exempt from accidental injuries we cannot tell. Therefore, no well-managed insurance company can afford, in justice to its policy-holders, to take such chances, for it might

be that nine out of ten of the adventurers would succumb to the rigors of the climate, to accident, or disease."

Some companies have announced that they will fix an extra rate of insurance for Klondikers When Prof. Chamberlin made his arctic trip he secured life insurance by paying an extra $5 to a $1,000 risk, and this rate may be imposed on gold-seekers by insurance companies. Some policies fix restrictions regarding travel and occupation, and such policies, doubtless, will be forfeited if the holders take a trip to the north land gold district. Owing to the widespread attempt that was made on the part of gold-seekers to protect their families by life insurance, many companies have given notice that all policies taken out by persons who soon after leave for Klondike or Alaska gold fields, will be canceled on the ground of attempted fraud.

At least 100 co-operative associations have been formed in various parts of the United States, most of them having the magic word "Klondike" in the name. These associations are built on lines similar to those followed by bodies of men and women who began, in 1892, to get ready to go to the World's Fair in Chicago in 1893. In forming one of these co-operative organizations, the members elect their officers, board of directors, and the all-important treasurer. Each week or each month each member pays into the treasury a certain amount of money, thus making a common fund, which is to be used next spring, either to send a few men to locate and work claims for all, or to take all to the Klondike. One of the most ambitious of these co-operative associations is a Brooklyn project. Following is the plan as outlined by the man who started the enterprise:

"When the gold talk was first published in the papers I conceived of the idea of establishing a colony in the

Klondike regions. I spoke to a number of my friends and acquaintances in the neighborhood, among them being several people connected with the Beecher Memorial church, which I attend. The idea seemed to take right away and I got several persons to agree to enter the scheme and agitate it among their friends. As a result, we have about thirty or forty people who are willing to go. They are nearly all men, although some of the men who are married intend to take their wives along. My wife will accompany me. As far as we can figure at the present time it will cost each man about $1,000, which will be used in buying outfits and provisions. We also propose to take along portable houses that we can erect as soon as we arrive at our destination. It has not been decided whether we will go by way of San Francisco or by the all water route around Cape Horn. If we decide on the latter way we will charter a boat in New York for the colonists. This we will stock with provisions for a year's supply. We will also take along horses and mules and guns and ammunition and everything that is likely to be needed.

"Where we will locate is not altogether decided upon. But we think on the United States side of the border line at a mountain which is said to be the fountain head of the gold field. We know just about the longitude and latitude and we are waiting to hear from Washington as to certain particulars in regard to the same. The agreement so far as entered upon in reference to claims is that each member of the party will be given 500 feet, which will be worked by the individual, who will reap all the good luck in gold nuggets that may be his lot to find. We intend to lay out part of the claims for street, residence and business purposes. In connection with the latter we will establish a general store, where goods

will be sold to the colonists at New York prices, with the freight added, but to all others that will apply for supplies we will charge Klondike prices. A church and a newspaper are also some of the things connected with civilized life that will be features of the settlement.

"In getting together a party of colonists we have been careful to enlist only those of good moral character, who, if possible, have a church standing, although the latter is not a necessary requirement. In the establishment of a church denominational lines will be obliterated, and it will be known as a people's church. If we cannot get a minister to come along with us one of the party will conduct the services. There is no doubt that we could get a large number of people to go along, but we do not want everybody, and the character of the applicant will be well weighed before he will be accepted. It is our intention to advance Christianity as well as civilization, and, of course, at the same time to make money. So we will be particular about the personnel of our party.

"We feel very confident that our colony will increase very rapidly after we are once settled, for it will be a great inducement for people, particularly of Brooklyn, to go to the gold fields when they know that there is a colony there of people who will welcome them, and they will not be among strangers. Telegraph, telephone and postoffice accommodations will soon follow, and we feel that it will not be long before we have direct communication between Brooklyn City, Alaska, and our own City of Brooklyn.

"Several persons desired to have the settlement called Greater New York, but it was decided that Brooklyn City would more closely connect us with our home city. As understood at present the new settlement will be

MISSION ON THE YUKON RIVER

governed by a board of officers as follows: President, vice-president, secretary and directors."

Reports have come down from the Klondike country that already the nimble witted sharpers who, passing as "old miners," lay in wait for "tenderfeet," are "salting" mines. One of the simplest ways of salting such a mine originated in Colorado and has been worked several times with marked success. The "old miner" has two claims, one a half day's journey in the wilderness and the other near the main group. The latter, he frankly says, is the richer of the two and demands his full time. He will sell the distant one very cheaply after its value has been determined by a practical test. He offers to go out with the stranger and spend a day on the claim, panning the sand, the proceeds of the day's labor to be equally divided.

This is a fair proposition, and if the stranger is fair game he goes. Long before daylight the comrades start, and reach the claim in time to put in a fair day's work. The claim pans only moderately well, and at the end of the day they have about five ounces of gold dust, worth about $90. They go back to town, the stranger and the old miner divide the proceeds, and the newcomer immediately sees visions of millions. He figures that he can take $40 or $50 a day out of the mine without any outside help. The old miner says he will take $1,000 spot cash for the claim, and he usually gets it.

Bright and early the next morning the new owner is back on the claim panning the sand like a steam engine. Everything runs splendidly for the first few hours, and then the dirt grows rapidly poorer, and usually before nightfall the amount of dust found becomes infinitesimal. The next day is worse than the preceding afternoon. The bottom of the gold end of the mine seems to

have dropped out, but the innocent keeps on working pluckily, and at the end of a week has about three ounces to show, two of them being the fruits of his first day's labor. If he is wise he goes back to town in search of information and to talk over the erratic showing of his mine. Then the first honest man of experience that he strikes will laugh and shout the melancholy word, "salted."

How did the "old miner" salt the mine? Easily enough. The common method is to take a shotgun, put in a moderate charge of powder and a quarter of an ounce of gold dust on top. Then the sharper fires the gun into the dirt, the gold dust scattering widely. Repeating this a dozen or eighteen times, the "old miner's" mine is ready for the innocent. The "old miner" can tell just where he fired the gold dust, and the first day's work is sure to lead to the recovery of most of the salting.

This is one way the mining confidence man works, but there are others. In one of the northern states of Mexico an English syndicate narrowly escaped paying $800,000 for a mine that wasn't worth $80. The money was sent over and deposited in a San Francisco bank and the payment was about to be made when a halt was called by an American mineralogist. The Englishmen had first sent over an expert, who made a most careful investigation. He spent two months on the work, and his findings full demonstrated the truth of the seller's statements.

Without notifying the first expert, a second expert was sent over, and he spent some six months in the work. First he visited several large American mines, and then he made a close study of the Mexican people, with the result that he determined to trust none of them. He decided to get the ore himself, breaking it off with a pick

and sealing it up in glass bottles, so that if they were tampered with he would know of it by the breaking of the seals. He hired an old, white-haired man, decrepit and feeble and blind in one eye, to hold the box while he chipped off the ore with the pick. No one else was allowed in the mine. The bottles holding the ore were carefully shipped under his supervision to San Francisco, where they were tested, and when his report was sent to London and compared with the other it was found that it confirmed the finding of the first expert. Upon this the money was sent, with instructions to pay the $800,000, on the final condition that a well known American mineralogist confirmed the findings of the two English experts.

The American took 300 samples, and of these 157 showed no gold, seventy odd less than $2 a ton, and the remainder from $2 to $4 a ton. The findings of the English experts showed an average of $18 to $25 a ton. Upon this payment of the $800,000 was at once stopped, and the representative of the syndicate decided to make a mill test of sixty days, placing one of their number in charge.

The new manager had every ounce of ore locked up in a room and each lot he had assayed, in addition to putting it through the mill. The assay confirmed the American's report, but the mill returns showed enough gold to warrant the English experts' reports. He knew that it was an impossibility for the mill to produce more gold than the ore contained, but to explain the impossibility was a problem.

After two weeks of wrestling with the enigma, the manager was sitting one evening a few yards from the mill, when he happened to look at the roof and saw an opening which aroused his suspicion. He and a couple

of trusted men at once made an examination, and there, between the ceiling and the roof, they found a Mexican with several glass jars of gold dust.

The fellow had bored a hole the entire length of the post running into the battery, and through this he had been pouring just enough gold dust to keep up the high character of the ore. That ended the trade. Later it was discovered that the second expert had been fooled by the old blind man, who had dropped rich samples into the ore box while the expert was working with the pick. It was believed that the first expert was swindled in a similar manner.

CHAPTER XXXVII.

SOLID DRINKS AND HARD FOOD.

ONE YEAR'S SUPPLY of provisions for an able-bodied man doing the hardest kind of outdoor work and subjected to the exposure incident to an Arctic climate is a formidable bulk. The dietary of such a man will not be at all excessive, if it amounts to five pounds of food per day—that is, a pound each of meat, bread, vegetables, milk and fruit. A year's supply at this rate would amount to over 1,800 pounds net of food.

Making allowance for the weight of the material in which the food would be packed, the Klondiker would have to struggle through the Chilkoot snows with certainly over a ton of commissary supplies, to say nothing of the other portions of his outfit. With shovels and picks costing from $12 to $17 apiece in the gold diggings, and all other tools and necessaries in proportion, the miner will naturally want to bring as many supplies of this kind as possible from the land of civilization.

Now, what is wanted is food in such a condensed form that the equivalent in nourishment to 1,800 pounds in bulk may be so reduced in weight that a man can carry it on his back. A writer, in the New York World, in this connection, speculates as follows:

"Science has done a great deal towards accomplishing this. The armies of the United States, England, France and Germany in their 'emergency rations' have accom-

plished marvels in the matter of condensation. Our own war department has proved it possible to condense a loaf of bread into a space no larger than a pack of firecrackers, a pound of beef into a hard chunk an inch or more square, a cup of coffee into a cough lozenge and a quart of soup into an oblong packet of about two cubic inches. The food is all there, all its nutritive elements preserved.

"Here is a partial list of things that might interest the Klondiker:

"Saccharine, a coal-tar product, put up in tiny tablets, each 200 times as sweet as sugar.

"Pemmican, a mixture of dried beef, fat and salt, half a pound of which goes a long way.

"Dried mixed vegetables, a French preparation of cabbages, turnips, beets and other things. One-tenth the original weight.

"Desiccated beef blocks, one ounce equal to five ounces of fresh beef.

"Desiccated soup, three ounces solid to a quart of water, salt included.

"Beef tablets, two-ounce size, containing most of the valuable elements of a pound of beef.

"Coffee lozenges, a half cup each, sugar included; tea, ditto.

"Kola, put up with chocolate in cakes, stimulating rather than nourishing.

"Malted nuts, a highly concentrated form of food, made digestible, or said to be.

"Lemon and lime tablets, one, vest-button size, to a glass of water. Fruit tablets of various other sorts, less valuable for the miner.

"Celery tablets, an appetizer a man who digs for gold will hardly take, except as a luxury.

"Strawberry tablets, useful mainly for flavoring.

"Desiccated apples, peaches, pears, potatoes, turnips, onions and other things, generally one-tenth weight.

"Olives, stoned and desiccated, very nutritious, a recent Californian arrangement.

"Peanut meal, very light and nutritive, useful as a soup ingredient.

"Bean and pea soup packages, a compressed form of the most nutritive vegetables known, combined with 'soup stock.'

"Poi, a Sandwich Island preparation of ground and dried tara root, very nutritious, but not to be compared in comparison with the various tablets, etc.

"There are other things the Klondiker would like but can't get, because they are army specialties, jealously guarded—like the 'iron ration' of the British soldier, a tiny can of pemmican and one of cocoa and honey; or the 'erbswurst' of the German army, a sausage-shaped mass of pea meal, fat and bacon, which makes twelve plates of good pea soup. But these rations are not supposed to be good as a steady diet in any case. They are meant only to help out in a tight place.

"There are, however, milk tablets which can be used, generally designed for convalescent diet, but available for general purposes—the lactopeptines, or milk and pepsin in combination; and the malted milk tablets which are already used as condensed luncheons by a few New York men—gold miners in the Wall street canyon. These milk tablets are about as large as a button. A tin can about two inches and a half high and two inches and a quarter across contains the equivalent of several meals, if allowed to dissolve on the tongue slowly.

"The British sailor is called a 'lime-juicer,' because lime juice is served out to him on long cruises to prevent scurvy. This disease is the bane of Arctic explorers and the

bugbear of Arctic miners. The Klondike man wants plenty of lemon and lime tablets.

"He wants oil, also. He may think he doesn't but he does. Just at this season, and in the latitude of New York, oil dosen't appeal to a jaded palate, but the Klondike has a Russian climate, and it is known that in Russian towns poor people used to shin up the lamp-posts and drink all the oil designed for lighting the streets, until the discovery of petroleum enabled hard-hearted municipalities to substitute a brand of illuminating fluid less favored by connoisseurs as a beverage. Nowadays, poor Russians with long memories look wistfully up at the gas lamps, shake their heads, sigh, and curse the government.

"The miner who wants to carry his own pack over the pass will have to live on nourishing soups and savory stews a good deal of the time after reaching the Klondike. Most concentrated foods lose their fiber. There is nothing to chew on. Almost everything comes as a powder or a paste, and needs nothing but boiling water and an appetite to make a meal.

"One way to get along with less food in the Klondike region is to keep warm. This is generally managed by building one's cabin right over his claim and digging down through the frozen ground underneath. Here, in a great pit, sheltered from the wind, the miner works in a degree of discomfort perhaps not greater than that of the Canadian lumberman out of doors. It is a useful pointer that the lumberman's favorite diet is pork and beans, and that pea soup comes next in favor.

"The Klondike miner will do well to cultivate a sweet tooth if he has it not. Sugar is one of the most condensible of foods, and is also almost entirely a fuel food and cheater of the cold.

"The accompanying table of a year's food, which may

be carried into Klondike on a man's back, is based partly on Prof. W. O. Atwater's tables of food values and food needs, and upon the supposed strength of the various tablets and extracts. It is based, also, in part, upon the U. S. army ration and other standard dietaries. It is not 'guaranteed to give satisfaction,' but it includes nothing that is not easily possible, and nothing which will not be one of the commonplaces of modern life within a very few years. Its total weight equivalent in ordinary food is only a little over 500 pounds, but the ingredients are carefully chosen to avoid waste.

Article.	Weight pounds.
War bread	12
Bean and pea tablets	14
Beef, desiccated	14
Potatoes and mixed vegetables, desiccated and condensed	10
Saccharine	$\frac{1}{4}$
Milk tablets	2
Coffee tablets (with saccharine)	1
Tea tablets (with saccharine)	1
Pressed olives, stoneless, desiccated	3
Lemon and lime tablets (almost pure acid)	2
Malted nuts and nut meal	2
Celery tablets	1
Desiccated fruits	5
Salt (included in most of the food tablets)	2
Total	69¼

"These tablets, with the new silk rubber suit of clothing, invented by a man in Kokomo, Ind., which is as light as air and warm as buffalo robes, simplify the problem of the argonauts. This new garment is said to be quite impervious to wind and water, to be so firm of texture that it will never wear out, and to render the conventional suit

of clothes necessary only as a concession to established custom. As soon as the new triumphs of food tablets and Indiana science shall be perfected and find their way to market, the American citizen who wants to go to the Klondike country may snap his fingers at the Canadian import duties, the pack mule problem and the grocery bill."

There is a man in Seattle, Wash., who says he is going to make millions out of the Klondike treasures without going to Klondike—in fact, by staying right where he is. This man has a long head, and he says that the genius who solves the food problem will be richer than the man who strikes the richest find in the gold fields. He believes that he is that genius.

"Why, man," he says, "in an ordinary valise I can put enough food to last a healthy man a year and give him a menu just as varied as he could find in a first-class hotel. He can easily take another one of those valises, and when he reaches Dawson City he can sell it for $2,000. That's what a year's supply of good food is worth there. If he wants to load himself down with a good-sized burden he can take four or five supplies, and he will be a comparatively rich man the moment he reaches his destination. Why, one of those valises will buy a half interest in a claim panning $200 a day. I am selling them for $250 each and they cost me $50. I make 400 per cent profit, and the man who takes them makes at least 700 or 800 per cent. That's a pretty big scheme, isn't it?"

Two years ago the speaker was one of a party that interested the United States government in a condensed food scheme to be adopted in case of war. A commission, appointed by the secretary of war, and composed of experienced army officers, made thorough investigations, and their subsequent reports were largely favorable. It

was shown that it would be possible for a large army to move a considerable distance from its base of supplies without the usual attendant wagon train and beef "in the hoof" by supplying each soldier with a packet of condensed foods. It was, however, reported that while foods of this kind could safely be used in event of emergency, it was inadvisable to furnish them when fresh foods were obtainable. In the Chinese-Japanese war the soldiers of the Mikado executed several long marches with unusual dispatch by the use of condensed foods. Each soldier, in addition to a cartridge belt, carried what was called a dinner belt. This was filed with a large assortment of capsules, pills, buttons and small packages, none of them larger than a medium-sized pocketbook. The dinner belt weighed but ten pounds, but it contained enough nutriment to sustain the soldier for thirty days.

The present scheme is to furnish Klondike voyagers with an assortment of condensed foods somewhat similar to that carried by the Japanese, but adapted to the peculiar needs of the men in the diggings.

"The great beauty of this food," said the genius, "lies in the fact that the miner doesn't have to waste any time for meals, and every minute counts in that district, when the mining can only be done three months of the year. The ground cannot be thawed out until June 1, and after September 1 it is useless to attempt anything. In these three months he has to crowd in enough labor to make up for the nine idle months, and if I can save him an hour each day of the working season it is an item of considerable importance."

Anything in the eating line can now be put up in condensed form, from a canvas back duck to corned beef and cabbage, and in such light shape that either dish could be sent through the mail for two cents. Even boned turkey

is put into tablets, to say nothing of Boston baked beans, oysters, fruit and vegetables.

A good cup of coffee or tea is crowded into a mass as thin and as small as a medium-sized button. It is already sweetened with a saccharine product of coal tar and accordingly requires but a very small amount. One of these buttons dropped into a cup of hot water becomes immediately a cup of good coffee or tea.

All kinds of soups are prepared in the same way. The buttons contain a mixture of meat and vegetables, fully seasoned and ready for the hot water. A sausage-like affair, not as large as frankfurter, and made of pea meal, fat and bacon, makes twelve plates of nutritious soup. This has been used in the German army for nearly thirty years, its efficacy being determined during the Franco-German war, when the German soldiers, on their quick marches in the enemy's country, had little else to eat.

Mince pie, plum pudding, apple dumplings and kindred delicacies are also to be had in forms not larger or heavier than a silver quarter. But this is not the kind of food that the genius proposes to put up in the miner's kit. He is going to use the substantials only, and prepare his provender on the lines of that used in the army.

One of the essentials will be desiccated beef, an ounce of which is equivalent to five ounces of fresh meat. It is put up in hard little chunks—so hard that an ordinary knife makes little headway against it. A tiny machine like a coffee mill grinds it into fine shavings, which can be spread on bread or used for soup making.

A loaf of bread is compressed into a mass not much bigger that a soda cracker. When soaked in water it swells up like a sponge, and when dried out makes very fair eating. A loaf of the same size is composed of a preparation of flour, beef, fat and salt and contains all the

essentials of a plain but hearty meal. This is somewhat similar to the pemmican ration used in the British army.

Ten pounds of onions, carrots, potatoes, turnips, cabbage or any other vegetable are, by the condensing process, crowded into one-pound cans, and for soup-making purposes are said to be excellent.

The man who counts upon being a millionaire through his scheme does not expect to do anything this season, as the time for leaving for the Klondike is practically over. He expects, however, to be in shape to launch his project early next spring, when the first steamer sails and when the food supply in the mining district is practically exhausted.

The question as to what supplies are necessary to be taken in by those preparing to go to the Yukon is one over which there has been considerable discussion. The estimates made by some of the most experienced miners has been considered by others equally experienced as entirely too large. It has been suggested that the emergency ration as adopted in the United States army, supplemented possibly by some dried fruits and desiccated vegetables, would be a very good guide in treating on this subject.

The emergency ration as adopted for the United States army is composed as follows: Bacon, 10 ounces; hard bread, 16 ounces; pea meal, 4 ounces, or an equivalent in approved material for making soup, coffee, roasted and ground, 2 ounces; or tea, ½ ounce; saccharine, 4 grains; salt, 64-100 ounce; pepper, 4-100 ounce; tobacco, ½ ounce.

For use the bacon is wrapped in tough paraffine paper. The hard bread is inclosed in air and grease-proof cartons; the pea meal prepared in cylindrical packages and the other components in suitable packages.

The ration is not intended for continuous use, but sole-

ly for occasions arising in active operations when the use of the regularly established ration may be impracticable, and never for a longer period than ten days at a time. Its nutritive qualities permit its use on half allowance, furnishing a full (minimum) subsistence diet, so that in extreme emergency five days' rations may be made to last for ten without any impairment of health resulting from the temporarily restricted diet. Not more than five days' emergency rations are allowed to be carried on the person of the soldier at any one time.

All the component parts of this ration were made the subjects of thorough investigation and experiment by boards of officers convened in each military department before adoption; and the ration, as a whole, has been used by troops in the field with satisfactory results within the circuit of the time above stated. How it would stand the test of use during a long period and exclusive of other supplies—an end for which it was never intended—is a matter of doubtful question.

It will be seen at a glance at its components that the emergency ration of the army is just about what a miner, prospector or explorer would naturally select for his trip. An army officer said that there can be no doubt as to the entire wholsomeness of all its components, and in his opinion it would be sufficient to preserve health and bodily vigor during a far longer period than ten days, and indefinitely, with the addition of such canned vegetables, etc., usually forming part of every campaigning outfit. While the "condensed ration," in many forms and of many manufactures, foreign and domestic, was extensively experimented with by the various boards of officers above referred to, none was found that appeared to meet all demands, and none recommended for adoption. Coffee and tea in shape of extract, essence, tablets or paste,

ground and pressed, with or without sugar; meats, potted and tinned, powdered, smoked, in capsules, jars, in sausages, combined with pork, with potatoes, soups in liquid, solidified, desiccated, tablet form, desiccated vegetables and a host of other preparations, all doubtless of greater or less merit and value, were swallowed by these gentlemen with a reckless disregard of consequences to digestive organs little less than heroic. But none was found suited to the stomach of the American soldier and the demands of the authorities for the purpose intended. And the final verdict of all boards was practically a return to the orthodox "hard bread, bacon and coffee," which is the soldier's and miner's standard the land over.

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